

*Eleventh*

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*Illinois Education Research Council*

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**Compendium  
of  
Abstracts**

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# Abstracts of Symposium Presentations Arranged by Session

CONCURRENT SESSION 1

THURSDAY, JUNE 13

2:15 – 3:15 PM

## 1A - Beginning Early

### The Birth-to-College Collaborative’s Approach to Job-Embedded Professional Development and Alignment: Professional Learning Communities .....1

Amanda Stein, The Ounce of Prevention Fund and Teyona James-Harris, The Urban Education Institute/University of Chicago Charter Schools

### How Are They Doing Now? Longitudinal Follow-up Study of Quality Early Education Recipients .....2

Amanda Stein and Jacqueline Robinson, The Ounce of Prevention Fund

### School Attendance Among Chicago Public Schools’ Youngest Students: Understanding the Causes of Preschool Absenteeism and Its Relationship to Learning Outcomes .....3

Stacy Ehrlich, Julia Gwynne, Amber Stitzel Pareja, and Elaine Allensworth, University of Chicago Consortium on Chicago School Research

## 1B - High School to College Reporting

### Effects of High School Coursework on College Placement & Success .....4

Matthew Crull and Kevin Fuss, Kishwaukee College

### Evaluation of the Illinois High School to College Success Report.....5

Brenda Klostermann, Illinois Education Research Council and Sean Cameron, Southern Illinois University Carbondale

## 1C - Student Support & Engagement in Higher Education

### Advising Matters: An Institutional Assessment of Advising Resources .....6

Patricia Inman and Celina Sima, University of Illinois at Chicago

### Student Engagement in Higher Education: Implications for Policy .....7

M Cecil Smith, John Schwartz, David A. Walker, and Michelé Robinson, Northern Illinois University, Amy D. Rose and Amy Hitchcock, Seattle University, and Jovita Ross-Gordon, Texas State University-San Marcos

**2A - Longitudinal Data Systems**

**Seeking Excellence and Diversity: How Stages in the Pipeline from High School to K-12 Teaching Affect the Composition of New Teachers.....8**  
 Brad White and Eric Lichtenberger, Illinois Education Research Council and Karen DeAngelis, University of Rochester

**When Worlds Collide: Research, Policy, and Educational Implications for State Research Agendas .....9**  
 Allison Witt, Debra Bragg, and Matthew Linick, University of Illinois at Urbana-Champaign

**2B - Underrepresented Students in Higher Education**

**Concentrated Opportunity?: Enrollment and Attainment Trends Among African American and Latino Males Attending Community Colleges in Illinois.....10**  
 Lorenzo D. Baber and Edmund Graham, University of Illinois at Urbana-Champaign

**Predicting Likelihood of College Graduation for Low-Income and Under-Represented Students.....11**  
 Susan Gershenfeld, Denice Ward Hood, and Min Zhan, University of Illinois at Urbana-Champaign

**2C - High School Effects**

**The Educational Benefits of Attending High-Performing High Schools .....12**  
 Paul Moore, Marisa de la Torre, and Elaine Allensworth, University of Chicago Consortium on Chicago School Research

**Who Fails Algebra, Who Attends Summer School Credit Recovery Classes, and Who Recovers the Credit? .....13**  
 Amber Stitzel Pareja and Elaine Allensworth, University of Chicago Consortium on Chicago School Research

**Being a Gifted Adolescent Girl in the School House: Making Sense of Her World ..14**  
 Julie Devaud, DePaul University

**Characteristics of Successful Teacher Mentoring.....15**  
 John Cook, Governors State University

**Enhancing the Quality of Early Math Instruction in Community College Early Childhood Education Programs .....16**  
 Lisa Ginet and Emma Wellman, Erikson Institute

**Envisioning New Landscapes: Chicago Teachers Reflect on Three Years of an Arts Partnership.....17**  
 Louanne Smolin and Della Leavitt, LIS Research Consulting and Joseph Spilberg, Chicago Arts Partnerships in Education

**Evaluation of an Early Math Intervention and Development Project .....18**  
 Amanda Stein and Elizabeth Rothkopf, The Ounce of Prevention Fund and Jie-Qi Chen, Erikson Institute

**An Examination of Beliefs and Perspectives about Teaching Mathematics in Early Childhood Classrooms.....19**  
 Sham’ah Md-Yunus and Geena Anselmo, Eastern Illinois University

**Examining Culturally Responsive Pedagogy in Multi-Ethnic Ninth Grade Classrooms .....20**  
 Andrew Brake and Hannah Graham, University of Chicago

**Examining Quality of Mathematics Teaching in Early Childhood Classrooms.....21**  
 Bilge Cerezci, Jeanine Brownell, and Jennifer McCray, Erikson Institute

**Focusing on the Whole Teacher in Teacher Professional Development .....22**  
 Jie-Qi Chen and Jennifer McCray, Erikson Institute

**How Do Student Characteristics and Environmental Factors Influence a Community College Student’s Decision to Enroll In-District or Out-of-District? ...23**  
 Nick Zyznieuski, Illinois Education Research Council

**Integrating Conceptions of Science Inquiry across University and Elementary Classrooms.....24**  
 Eun Kyung Ko, Alan Rossman, and Diane Salmon, National-Louis University

**Integrating Curriculum for Academic Growth .....25**  
 Jeanne Okrasinski, Eastern Illinois University and Julia Colombo, Mattoon Middle School

**Investigating Professional Self-Efficacy Development in Pre-Service Teachers .....26**  
 Stephen Lucas and Catherine Polydore, Eastern Illinois University

**A Look at Teachers’ Pedagogical Content Knowledge of Early Mathematics .....27**  
 Yinna Zhang and Jie-Qi Chen, Erikson Institute

**Master of Science in Middle School Mathematics Education (MSME):  
 An Examination of Program Outcomes and Effectiveness.....28**  
 Nayantara Abraham and Jonya Leverett, Loyola University Chicago

**The Relationship of Neighborhood Crime to Post-Secondary Educational  
 Attainment in Illinois: A Longitudinal Study of the High School Class of 2002 .....29**  
 Robert Polacheck, Northern Illinois University and Janet K. Holt, Illinois Education Research  
 Council

**Relaxation Skills & High Stakes Testing: Role of SES & Environmental Factors on  
 Anxiety Levels.....30**  
 Heidi Larson, Sarah Puchalski, J. Adriane Tschantz, Rob McKinney, Luz Lomeli, Alyssa Swan, and  
 Daniel Osterloo, Eastern Illinois University

**Technology and UDL in Urban Classrooms: An Examination of USTEP Student  
 Teachers’ Perception and Use of Technology for Differentiated Instruction.....31**  
 Xiuwen Wu and Kate Zilla, National Louis University

**Trends in Students’ Confidence of Future Majors and Occupations: Lessons  
 Learned from the Illinois High School Class of 2002-2005.....32**  
 Casey George-Jackson, University of Illinois at Urbana-Champaign and Eric Lichtenberger,  
 Illinois Education Research Council

**3A - Teacher Support and Evaluation**

**Designing and Implementing the Next Generation of Teacher Evaluation Systems: Lessons Learned from Case Studies in Five Illinois Districts .....33**  
 Susan Sporte, University of Chicago Consortium on Chicago School Research and Brad White, Illinois Education Research Council

**Impact of Labor-Management Collaborations on Teaching and Learning: Findings from the Great Lakes Teacher Union Reform Network (GL TURN) Evaluation Study .....34**  
 Mary McDonald, Consortium for Educational Change and Sara Kraemer, Wisconsin Center for Education Research

**When Needs and Funding Fail to Intersect.....35**  
 Lynn Sikma, Jason Swanson, Alexis Jones, and Patricia Brady, Illinois New Teacher Collaborative, University of Illinois at Urbana-Champaign

**3B - Improving Performance Metrics**

**Apples to Apples: An Alternative Look at Chronic Gaps in Achievement and Instructional Effectiveness in Chicago and All Illinois excluding Chicago .....36**  
 Paul Zavitkovsky, University of Illinois at Chicago

**An Inventory of Definitions and Measures of College Quality .....37**  
 Jennifer Stephan, Lisa Hoogstra, Elisabeth Davis, Alicia Garcia, and Shazia Miller, American Institutes for Research

**3C - College Enrollment & Completion**

**The Community College Penalty and Bachelor’s Degree Completion: Fact or Fiction? .....38**  
 Eric Lichtenberger, Illinois Education Research Council and Cecile Dietrich, Research Consultant

**The Impact of Dual Credit on College Enrollment and College Completion for Underrepresented Students in Illinois .....39**  
 Jason Taylor, University of Illinois at Urbana-Champaign

**4A - College Student Pathways**

**Comparing the Bachelors Completion Rates of Native Students and Transfer Students using Multiple Informational Sources .....40**  
 Eric Lichtenberger, Illinois Education Research Council and Liz Sanders and Gerry McLaughlin, DePaul University

**Migration of Illinois College-bound Students .....41**  
 James Sconing, ACT

**A Strategic Look at Enrolling Successful Transfer Students .....42**  
 Connie Castellucci, Lois Bishop, Liz Sanders, and Gerry McLaughlin, DePaul University

**4B - Technology Advances in Education**

**Methods for Stimulating Intellectual Curiosity and Affecting Deep Learning in the Classroom and the Impact of Modern Technology in Education .....43**  
 M. Vali Siadat, Eugenia Peterson, Cyrill Oseledets, Ming-Jer Wang, Gyo Quan (Jack) Zhang, and Luissette Hernandez-Medina, Richard J. Daley College

**The Virtual Laboratory School at Northern Illinois University: A Distributed P20 Pipeline .....44**  
 Lara Luetkehans, Sharon Smaldino, Rebecca Hunt, Mary Baker, and Cassandra Hughes, Northern Illinois University

**4C - Advancing Data and Assessment Systems**

**Developing a Statewide System of Local Assessment Support .....45**  
 Mary O’Brien, Diana Zaleski, and Angela Chamness, Illinois State Board of Education

**Education Lessons Learned with Longitudinal Data Systems and Quasi-Experimental Design.....46**  
 Matthew Linick and Joseph Robinson, University of Illinois at Urbana-Champaign

**REL Midwest EdMaps: Assessing Education Data Geospatially .....47**  
 Matt Burke, American Institutes for Research



## Index of Authors

Abraham, Nayantara .....	28	Hughes, Casandra.....	44	Rossmann, Alan .....	24
Allensworth, Elaine.....	3, 12, 13	Hunt, Rebecca.....	44	Rothkopf, Elizabeth.....	18
Anselmo, Geena.....	19	Inman, Patricia .....	6	Salmon, Diane .....	24
Baber, Lorenzo D.....	10	James-Harris, Teyona.....	1	Sanders, Liz .....	40, 42
Baker, Mary .....	44	Jones, Alexis .....	35	Schwartz, John .....	7
Bishop, Lois.....	42	Klostermann, Brenda .....	5	Sconing, James .....	41
Brady, Patricia.....	35	Ko, Eun Kyung.....	24	Siadat, M. Vali .....	43
Bragg, Debra .....	9	Kraemer, Sara .....	34	Sikma, Lynn .....	35
Brake, Andrew .....	20	Larson, Heidi .....	30	Sima, Celina .....	6
Brownell, Jeanine.....	21	Leavitt, Della .....	17	Smaldino, Sharon.....	44
Burke, Matt .....	47	Leverett, Jonya .....	28	Smith, M Cecil .....	7
Cameron, Sean .....	5	Lichtenberger, Eric .8, 32, 38, 40		Smolin, Louanne I.....	17
Castellucci, Connie .....	42	Linick, Matthew .....	9, 46	Spilberg, Joseph.....	17
Cerezci, Bilge .....	21	Lomeli, Luz.....	30	Sporte, Susan.....	33
Chamness, Angela.....	45	Lucas, Stephen.....	26	Stein, Amanda .....	1, 2, 18
Chen, Jie-Qi.....	18, 22, 27	Luetkehans, Lara .....	44	Stephan, Jennifer L. ....	37
Colombo, Julia .....	25	McCray, Jennifer.....	21, 22	Swan, Alyssa .....	30
Cook, John.....	15	McDonald, Mary .....	34	Swanson, Jason .....	35
Crull, Matthew .....	4	McKinney, Rob.....	30	Taylor, Jason.....	39
Davis, Elisabeth .....	37	McLaughlin, Gerry .....	40, 42	Tschantz, J. Adriane.....	30
de la Torre, Marisa.....	12	Md-Yunus, Sham'ah .....	19	Walker, David A.....	7
DeAngelis, Karen.....	8	Miller, Shazia .....	37	Wang, Ming-Jer.....	43
Devaud, Julie.....	14	Moore, Paul.....	12	Wellman, Emma .....	16
Dietrich, Cecile,.....	38	O'Brian, Mary .....	45	White, Brad .....	8, 33
Ehrlich, Stacy.....	3	Okrasinski, Jeanne .....	25	Witt, Allison .....	9
Fuss, Kevin .....	4	Oseledets, Cyrill.....	43	Wu, Xiuwen.....	31
Garcia, Alicia .....	37	Osterloo, Daniel .....	30	Zaleski, Diana .....	45
George-Jackson, Casey.....	32	Pareja, Amber Stitzziel.....	3, 13	Zavitkovsky, Paul .....	36
Gershenfeld, Susan.....	11	Peled, Ofra .....	24	Zhan, Min .....	11
Ginet, Lisa .....	16	Peterson, Eugenia .....	43	Zhang, Gyo Quan (Jack) .....	43
Graham, Edmund .....	10	Polacheck, Robert.....	29	Zhang, Yinna .....	27
Graham, Hannah .....	20	Polydore, Catherine .....	26	Zilla, Kate.....	31
Gwynne, Julia .....	3	Puchalski, Sarah .....	30	Zyznieuski, Nick.....	23
Hernandez-Medina, Luisette .43		Robinson, Jacqueline .....	2		
Hitchcock, Amy.....	7	Robinson, Joseph.....	46		
Holt, Janet K.....	29	Robinson , Michelé.....	7		
Hood, Denice Ward.....	11	Rose, Amy D. ....	7		
Hoogstra, Lisa .....	37	Ross-Gordon, Jovita .....	7		



# **The Birth-to-College Collaborative's Approach to Job-Embedded Professional Development and Alignment: Professional Learning Communities**

Amanda Stein, PhD, Senior Research Associate, Early Childhood Education  
The Ounce of Prevention Fund

Teyona James-Harris, PLC Coordinator, Consultant to Birth-To-College Collaborative  
Director of Early Childhood Curriculum & Innovation, Woodlawn Children's Promise Community  
The Urban Education Institute/University of Chicago Charter Schools

The Ounce of Prevention Fund (the Ounce) and the Urban Education Institute of the University of Chicago (UEI) have formed a Collaborative designed to:

- 1) develop and engage in a comprehensive, transformative approach to professional development that results in a new, shared belief system and set of values, behaviors, and practices that will demonstrably improve outcomes for children during their first eight years of life, and their families, and
- 2) launch and refine a coordinated, high-quality, birth-to-age-eight model of public education that establishes consistent expectations for children's development and learning, standards, curriculum, assessment, and family supports from birth to grade three.

The purpose of creating this Birth-To-College (BTC) model of public education in Illinois is to lay a strong foundation and seamless pathway to accelerate children's development by creating, implementing, and evaluating newly aligned systems to provide vulnerable children, their families, and the professionals who support them with an effective, cohesive continuum of education and support. Professional Learning Communities (PLCs) have been established as our primary mechanism of job-embedded, collaborative professional development and alignment. PLCs engage staff in group-based inquiry with their peers about aligning evidence-based, best practices through the use of standards, data, and/or the empirical evidence-base. This presentation will explore the evidence, lessons learned, and policy implications of PLCs as a mechanism to advance a coordinated, high-quality model of public education beginning at birth within the work of the BTC Collaborative.

## **Methodology**

*Description of Sites:* The Ounce operates Educare Chicago serving 149 children and their families in a full-day, full year high-quality early education program beginning at birth and continuing to age five. The four campuses of UEI's University of Chicago Charter Schools (UCCS) create a preK-12th grade pathway for families residing on the south side of Chicago. North Kenwood/Oakland (NKO; preK-5th), Donoghue (preK-5th), Carter G. Woodson (6th-8th), and Woodlawn (6th-12th) enroll more than 1700 students. 98% of the students are African American and more than 80% are eligible for free or reduced-price meals.

*Project Design & Sample:* As part of our transformative approach to professional development, six PLCs, were established to bring together over 60 birth-to-grade three teachers, family support staff, and administrators to advance alignment in key areas: assessment, language and literacy, math, social-emotional learning, transitions, and families. These PLCs are unique in that: they have membership that crosses three schools, are interdisciplinary, span grade/development levels and are topic-based.

## **Data Collection and Analysis Methods**

Still in the early stages of development and implementation, we are taking a primarily qualitative approach to data collection and analysis in our work; with two mixed-method surveys of PLC members being a major source of formative evaluation data. Supplemental data such as archival BTC documentation produced and compiled by staff have been analyzed to support themes, concepts, and theories derived from documentation notes analysis.

## **Summary of Findings**

We will report progress on the study goals, describe findings from formative evaluation, and share lessons learned from our alignment work to create a BTC continuum of public education through engagement in a comprehensive, transformative approach to professional development. Reported findings will be from two years of work on a 3-year project (September 1, 2011 – August 31, 2014) funded by W. K. Kellogg Foundation, the Robert R. McCormick Foundation, and the Foundation for Child Development.

# **How Are They Doing Now? Longitudinal Follow-up Study of Quality Early Education**

Amanda Stein, PhD, Senior Research Associate, Early Childhood Education  
Jacqueline Robinson, Research Assistant  
The Ounce of Prevention Fund

## **Purpose and goals of the study**

The Educare Chicago Elementary School Follow-Up Study (FUS) is an ongoing, longitudinal, exploratory and descriptive study designed 1) to examine how effectively the Educare model of early childhood education prepares young children and their families from low-income backgrounds for school success; 2) to learn about the school environments and expectations of the primary grade teachers; 3) and to discover implications from these findings to inform program improvement decisions.

## **Theoretical/research background**

The ‘fade out’ of early education effects from pre-school into elementary school is well known and has surfaced most recently in the news with the release of the Head Start Impact Study’s third grade findings, which show fade out of academic effects in first and third grades. From its inception, the Follow-Up Study intended to look for fade out effects in elementary school.

The alignment of preschool to kindergarten and through third grade has also enjoyed a recent focus in research and policy. Such alignment has potential to ease the transition from pre-kindergarten programs to elementary school for both children and parents and has been associated with better student outcomes. The Follow-Up Study therefore, intentionally examines the transition from early education and tracks progress through elementary school experiences in order to better prepare children and parents for the transition into elementary school.

In the field of early learning and education, there is a growing expectation that programs use research-based practices and data to drive decision making, and accountability. This study is an example of how data collected on progress after leaving a program can be a rich source for program improvement.

## **Summary of findings**

Previous analyses have shown that:

- over 75% of Educare graduates are rated as average or excellently prepared for kindergarten through third grade; reading and math grades follow a similar pattern through third grade
- between 67% (reading) and 75% (math) are meeting or exceeding state standards at third grade
- special education services and grade retention are significantly lower than CPS average
- no fade out on average on standardized measures from the end of Educare participation to the end of third grade
- nearly 2/3 of Educare graduates’ parents in the study are rated by elementary school teachers as being actively involved in their child’s schooling

These analyses will be updated using current school year data.

## **School Attendance Among Chicago Public Schools' Youngest Students: Understanding the Causes of Preschool Absenteeism and Its Relationship to Learning Outcomes**

Stacy Ehrlich, PhD, Senior Research Analyst  
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Newly-emerging research suggests that chronic absenteeism is a significant problem among very young students, with 11% of kindergarteners across the nation chronically absent (Romero & Lee, 2007). The impact of high absenteeism on learning outcomes is more detrimental for high-poverty students, who are most likely to be chronically absent (Ready, 2010). Our research extends this work to look at absenteeism among *preschool* students enrolled in the Chicago Public Schools (CPS) and focuses on four research questions:

- 1) What does attendance look like in preschool and early grades, and who is most likely to miss more school?
- 2) How is preschool attendance related to preschool learning outcomes?
- 3) How is preschool attendance related to outcomes in later grades?
- 4) Why are students absent from preschool?

At IERC 2012, we presented preliminary findings on the first and fourth question. We showed that chronic absenteeism is very high among preschool students and that minority students were much more likely to be chronically absent than white or Asian students. This year, we share our remaining findings.

Preschool attendance is related to outcomes, both in preschool and in later years. Students who are chronically absent have lower levels of basic math skills and are less able to identify letters and their corresponding sounds by the end of preschool than those who attend regularly, even after taking into account prior skill levels. These chronically absent students start kindergarten behind their peers *and* have higher chances of being chronically absent in future years. The multiple years of chronic absenteeism is associated with lower outcome scores on standardized test scores in 2nd grade.

Aside from children being sick, families also face a range of obstacles to getting their children to school regularly, including child chronic illness, transportation and child care difficulties, and other family-related reasons. Minority students miss more school due to all of these reasons than white students do, and African American students are more likely to come from backgrounds that may make it harder to managing these obstacles: single-parent families, and families with lower parental education and poorer health.

Addressing the high rates of absenteeism beginning in the early years may help alleviate the high rates of absenteeism we see as children get older. While there are too many chronically absent preschool children to target each one individually, our findings may guide schools in thinking about higher-level supports, such as partnerships with local community organizations. Schools and communities could come together to understand the particular obstacles that parents in their community face, and work together to convey the importance of regular school attendance at the earliest ages and provide supports that families need.

# **Effects of High School Coursework on College Placement & Success**

Matthew Crull, Director of Research  
Kevin Fuss, Associate Vice President, Institutional Effectiveness  
Kishwaukee College

## **Introduction**

The Illinois High School to College Success Report yielded data to facilitate discussions between local high schools and post-secondary education institutions (IBHE 2010). The Research Office of Kishwaukee College has regularly evaluated incoming high schools students to analyze placement and performance in math, reading, and English. These data are shared with the local high school superintendents annually. Formal meetings were held in 2010 and 2011 between local high school administrators and Kishwaukee College administrators. It was agreed that specific coursework in each high school needed to be analyzed to determine how it affected College placement and performance.

## **Methods**

After signing data exchange agreements, recent graduates from participating local high schools who immediately attended Kishwaukee College were identified using the College annual enrollment file (A1) and logged into spreadsheets by the Research Office. These spreadsheets contained names, dates of birth, and high school graduation year. Spreadsheets were exchanged via institutional emails. High school personnel logged students' curriculum and performance in math, reading, and English during their time in attendance. Then these data were returned to Kishwaukee College. COMPASS placement scores and first related course performance at Kishwaukee College were merged up with the students. Students were analyzed based on which high school courses they were able to successfully complete with a grade of "C or higher" and progress through their high school curriculum. Individual comprehensive reports were designed to illustrate each high schools educational paths and how they affected placement and performance at Kishwaukee College.

## **Results**

The reports illustrated several highlights including successful completion of pre-calculus in high school increased the likelihood of College-level placement by 41.2% to 78.1% versus Algebra II completion depending on the high school. Successful completion of an advanced versus a standard English class in senior year increased College-level placement by as much as 10%. Additional differences were found between high school institutions regarding the impact of certain coursework.

## **Conclusions**

Primary implications for education policy at the high school level included using established benchmarks to determine the efficacy of math, English, and reading coursework pathways. Using these data, secondary schools can justify emphasizing more rigorous course requirements for graduates to improve and promote College readiness. Reports were disseminated to counselors, faculty, and parents of students at the high schools to encourage certain course-taking behavior. In some cases, reports were given to feeder middle schools to illustrate where students needed to be coming into high school for College success. Additionally, Kishwaukee College utilized the data to analyze COMPASS placement proportions based on high school coursework and special student population needs. Follow-up reports were planned for the future.

# **Evaluation of the Illinois High School to College Success Report**

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Illinois Education Research Council  
and Assistant Research Professor, Southern Illinois University Edwardsville

Sean Cameron, Senior Associate, Applied Research Consultants  
Southern Illinois University Carbondale

## **Purpose**

This evaluation study examined the dissemination and perceived usefulness of the newly designed Illinois High School to College Success Report (HS2CSR), first released in July 2011 and then again in February 2013, replacing the previous Illinois High School Feedback report. The evaluation also sought to better understand how report users are engaging in collaborative efforts and to solicit suggestions for data elements to add to, or remove from, future reports.

## **Methods & Results**

The overall evaluation included a multi-method approach to gather feedback from a wide variety of education stakeholders: principals, superintendents, 2-year and 4-year senior administrators, and various individuals from the high school, community college, and 4-year institution sectors. The evaluation included the use of an online survey, focus groups (face-to-face and online), and telephone interviews. In addition, feedback was obtained from individuals at three Illinois postsecondary education meetings. Preliminary results from the online survey will be presented.

We surveyed 1,653 individuals and received responses from 373 state educators, resulting in a 22.6% response rate. The number of respondents for each question varied due to skipping patterns in the questions. There was fairly even representation of survey respondents from across the state, with the majority of respondents from the high school sector. The majority of respondents received either one or both of the reports; however, many respondents didn't receive either report, indicating a dissemination issue with the report. Respondents received the report most often from their supervisor/administrator or the direct mailing of their institution's CD report. The vast majority of respondents preferred to be notified about the report by email. Approximately seven out of ten respondents reported they received the reports in a timely manner. Despite the delay in disseminating the Year 2 report, few indicated they received the report too late to use it. Of those who received and/or read either report (n=196), 64% indicated utilizing the HS2CSR, primarily to monitor student success or to collaborate within their institution. For those who did not utilize the report (36%), lack of time was cited most often. Two-thirds of those who used the report indicated it was moderately or very useful. Suggestions for additional data included: 1) information about a wider, more diverse set of schools; 2) all data "regardless of a small N size" so as not to limit the use for small high schools; and, 3) additional data elements that impact success, such as course loads and financial details. Just under two-thirds of respondents indicated they sometimes or often collaborate using the HS2CSR (n=111). Collaborations occurred more often with individuals within their institutions. Three-fourths of respondents indicated that the report helps their current collaborative efforts to some extent and another 15% indicated to quite a bit extent (n= 111).

## **Implications for Illinois**

As Illinois continues to develop its longitudinal data system, it is critical to know effective dissemination strategies to ensure the data get to the intended users. These results suggest direct email to stakeholders would be effective to inform them of the report. Many of those surveyed found the HS2CSR useful; however, lack of time hampered their efforts to utilize the data. Assisting with data interpretation to help stakeholders digest the information may facilitate the use of the report. Lastly, building on current collaborative relationships and encouraging new collaborations to utilize the HS2CSR would increase data-informed decision making to improve student success both within- and across-institutions.

## **Advising Matters: An Institutional Assessment of Advising Resources**

Celina Sima, PhD, Visiting Professor of Educational Policy Studies  
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Colleges and universities have never been under more scrutiny regarding student learning outcomes. As college costs have risen, legislators, students, and their parents are concerned about successful, as well as timely, completion of the undergraduate degree. To that end, institutions of higher education are spending significant resources (facilities, staffing and dollars) in providing a myriad campus and departmental advising services designed to ensure student success. After years of offering and honing these resources, how much do we know about how advising affects academic success?

UIC institutional studies with specific student populations over the past several years have suggested that advising resources at our institution are disparate, and from a student's perspective, uneven in utility and value. The Advising Matters Study is an effort to better understand how students use and value information from various sources in an effort to improve campus advising. The Advising Matters project includes a two-pronged approach. This is a report on the baseline survey -- a single snapshot view of the experiences of students over the course of their first year at UIC. The survey was administered during Fall 2012 to a sample of students who entered as freshmen in Fall 2011.

The results from the survey are reported in three sections. The first section outlines students' use of each group of advising resources separately (e.g., college advising offices; support services and resource offices; etc.). The second section discusses how students triangulate information across resources, (e.g., use of college advising, friends and support services). The third section addresses the students' responses to the open-ended questions.

### **Policy Implications**

Many college and university leaders look to the higher education research community to guide their policy and program decisions. At present there is a dearth of college advising guidance based on research. Given the growing student financial burden, it is important for higher education leadership to have some empirically based guidance about the advising support that students need to successfully move through their academic career to a timely graduation.



## **Student Engagement in Higher Education: Implications for Policy**

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John Schwartz, Doctoral student, Educational Psychology  
David A. Walker, PhD, Professor of Educational Technology, Research and Assessment  
Michele' Robinson, Doctoral student, Educational Psychology  
Northern Illinois University

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US higher education is facing increased public scrutiny including concern that college and university students may not be acquiring the skills and knowledge they need to be employable in a highly competitive global work environment. Some evidence suggests that college students are not developing critical thinking skills and are, in fact, not learning very much (Arum & Roksa, 2011). Associated with the claim that college students are under-achieving is the observation that student engagement is lacking (Kuh, 2007). In other words, students are not fully invested in their coursework, motivated to learn, or actively participating in their classes.

Our presentation will report the results of a literature review in which we examine the policy-relevant issues pertaining to student engagement and how their engagement might be enhanced to increase academic achievement and other significant student outcomes in higher education. These include students' enrollment status (i.e., full-time, part-time), students' perception of themselves as learners, and institutional dynamics. We will also report outcomes from our analyses of data from the 2009 National Survey of Student Engagement (NSSE), which can shed further light on student engagement and academic performance. A significant issue is closer attention to the dynamic nature of students' enrollment status, which can shift not only across semesters, but also within semesters. For example, a student might be enrolled full-time but, due to economic need, drop to part-time in order to work. This effect of this relatively new enrollment phenomenon has not been considered in research on student engagement, nor have the implications of the fluid nature of enrollment status been fully considered by higher education policymakers.

We conclude by suggesting that our analysis of students' engagement could benefit higher education policymakers, institutional leaders, and faculty members and should be a chief concern when planning curricula that better prepare students to be participating citizens in democratic society, and successful in the globalized work environment.

## **Seeking Excellence and Diversity: How Stages in the Pipeline from High School to K-12 Teacher Affect the Composition of New Teachers**

Brad White, Senior Researcher  
Eric Lichtenberger, PhD, Associate Director for Research, and Assistant Research Professor  
Illinois Education Research Council  
Southern Illinois University Edwardsville

Karen DeAngelis, PhD, Assistant Professor, Warner Graduate School of Education  
University of Rochester

This study examines how stages in the pipeline from high school through college and initial teacher certification affect the composition of new entrants to K-12 public school teaching in Illinois. Of particular interest are the academic skills and racial/ethnic diversity of the teaching force, two characteristics of teachers that continue to be of national and local concern. Using a unique, longitudinal state database, the IERC aims to gain a better understanding of how each stage in this important source of teacher supply influences the characteristics of those who enter the profession. In this presentation, we will discuss the final findings from this study addressing three primary research questions:

- 1) What are the racial/ethnic and academic characteristics of those who aspire to teach while in high school? To what extent do aspirants' characteristics differ from those of non-aspirants? To what extent do the aspirants'/non-aspirants' characteristics differ by geographic region and locale type in Illinois?
- 2) What proportion of high school students who aspire to teach eventually become teachers? As portions of this group advance through the pipeline while others do not, how does the academic and racial/ethnic composition change at each step? Do those changes vary by geographic region and locale type? To what extent does each step in the pipeline impact Illinois' ability to attract an academically skilled, diverse teaching force?
- 3) Among those who do not aspire to teach while in high school, what proportion eventually enters teaching? How do the characteristics of non-aspirants who become teachers differ from those of aspirants who become teachers? How do the pathways of non-aspirants who become teachers differ from those of aspirants who become teachers?

## **When Worlds Collide: Research, Policy, and Educational Implications for State Research Agendas**

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Debra Bragg, PhD, Professor of Educational Policy, Organization, and Leadership  
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Matthew Linick, Associate Director of the Forum on the Future of Public Education  
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Concerns surrounding the creation of state longitudinal data systems (SLDS) have centered on issues of student privacy, as well as political and philosophical debates about government and public access to, or uses of, data. Yet, the promise of comprehensive longitudinal data linking P-20 systems to workforce has largely carried the day for policymakers and educators alike. Currently all states have begun to establish versions of such data systems. The implications of potential research generated by these SLDS will span the P-20W spectrum, and in many ways, the development of such data systems represents a new era in education research and policy.

Among the many developments spurred by the federal government's large investment in SLDS has been the generation of state research agendas created to inform the design and use of these data systems. The purpose of this study is to investigate these state research agendas to better understand the fast moving policy environment of SLDS and the states' intentions for them. This study represents an effort to capture the state level enactment of this federal initiative, and it also serves as an important first step in documenting the states' priorities for using this data to track and direct educational outcomes.

These state research agendas are themselves a policy innovation, yet at the same time, alter the landscape in which future innovations will be adopted. Drawing on postsecondary policy innovation research, and research utilization theory, this study maps the aggregate subject matter of the state research agendas and considers thematic patterns in their contents. This research relies not only on policy diffusion models, but also considers the impact of federal policy and funding initiatives, as well as national advocacy groups, on local, regional patterns.

Using qualitative analysis of texts and interviews of participants from states, this study examines emerging research themes across states to determine the frequency and measure similarities or differences in state research agendas particularly as they impact different sectors including K12, community college, and four year institutions. Findings of this study include an analysis of to what extent there are geographic patterns and thematic trends in the manner states intend to use their SLDS. Though these data systems reside at the state level, we will investigate what role federal policy and national advocacy groups play in determining both their content and form.

Finally, this research provides a baseline from which these agendas can be mapped and studied going forward. Questions regarding the ultimate utility of state research agendas remain. The impact such agendas have in the adoption of future policy innovations is an important area of future study.

## **Concentrated Opportunity?: Enrollment and Attainment Trends Among African American and Latino Males Attending Community Colleges in Illinois**

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Edmund Graham, Graduate Assistant, Office of Community College Research and Leadership  
University of Illinois at Urbana-Champaign

An increasingly competitive global economy has prioritized improving postsecondary access and completion in the United States. Recent data suggest that education attainment rates beyond high school as slowed considerably. Between 1998 and 2010, the United States fell from 4th to 14th among OECD nations in the percentage of young adults (25-34) with a postsecondary degree (OECD, 2005; 2010). Stagnant educational attainment rates have both economic and sociocultural consequences. From an economic perspective, an educated workforce is critical for competitiveness in a knowledge-based, global economy. From a sociocultural perspective, an educated citizenry supports the egalitarian principles of a participatory democracy.

To improve overall postsecondary degree production, Bowen, Chingos, and McPherson (2009) suggest focusing on key target populations with low levels of college completion. One such group is traditionally underrepresented males of color, specifically Black and Hispanic<sup>1</sup> males. While 38 percent of young adults have earned at least an associate's degree, just 22 percent of Black males and 14 percent of Hispanic males have similar postsecondary credentials (Ryu, 2010). While previous scholarship provides a strong portrait on issues related to Black and Hispanic males in postsecondary education, significant gaps remain. Most notably, current research tends to disproportionately focus on underrepresented males of color attending four-year institutions despite the fact that nearly a third of all Black males and almost half of all Hispanic males enroll at a community college (United States Census Bureau, 2009). Second, research in this area tends to focus on individual experiences rather than institutional performance. Moving from individual persistence behaviors to institutional retention efforts is an important shift for improving educational outcomes for Black and Hispanic males.

The purpose of this presentation is to contribute to scholarship on Black and Hispanic males by examining enrollment trends among those attending community colleges in Illinois. In a 2011 report to the Illinois Governor and General Assembly, the Illinois State Board of Higher Education (ISBHE) emphasizes the need to focus on strategies to increase postsecondary education among Black and Hispanic males (ISBHE, 2011). By examining observational data, we may uncover key trends in the state and highlight institutional performance in enrolling, retaining, and graduating Black and Hispanic males.

This presentation will include descriptive data accessed through the Illinois Board of Higher Education (IBHE) and the Illinois Community College Board (ICCB). Enrollment and completion rates between 2000 and 2010 will be presented to examine longitudinal trends at the state level and at specific community colleges. Additionally, this presentation will highlight institutions with positive trends in enrollment and completion outcomes for Black and Hispanic males during this period. By identifying these institutions, we hope to set up future research that will examine specific institutional policies and practices geared towards addressing educational outcomes for Black and Hispanic males.

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<sup>1</sup> Researchers are using terms 'Black' and 'Hispanic' to be consistent with terminology used by the data sets used for this presentation.

## **Predicting Likelihood of College Graduation for Low-Income and Under-Represented Students**

Susan Gershenfeld, Director, Illinois Promise Student Services  
Denice Ward Hood, PhD, Assistant Professor, Education Policy, Organization & Leadership  
Min Zhan, PhD, Associate Professor, School of Social Work  
University of Illinois at Urbana-Champaign

The central motivation in this study is to understand factors that place low-income and under-represented college students at risk of not graduating. The study sample consists of 1,948 students at the University of Illinois at Urbana-Champaign enrolled between 2005 and 2006 who have one or a combination of the following identifiers: President's Award Program (PAP), Educational Opportunity Program (EOP), Illinois Promise (IP). Students with the PAP and/or IP identifier receive scholarship support, with the IP scholarships covering the difference between other grants and scholarships (including MAP) and the cost of education. All IP students have family income at or below the federal poverty level. Available database variables include: gender, Composite ACT, identifier (seven combinations of PAP, EOP, IP), race, college of origin, final college, major type (STEM or Non-STEM based on NSF definitions), first-semester GPA and last-semester GPA. To assess these factors, a set of logistic models were constructed with a dependent variable in which students from 2005-2006 cohorts were coded as 1 if they graduated anywhere at or before May, 2012. Students from both cohorts were coded as zero if they did not graduate within this time frame. These are the only two cohorts of students for which this complete window of six years is available as the IP program was initiated in 2005.

The most significant factor for both low-income and under-represented students who did not graduate within this time frame is a low first-semester GPA, with students having a GPA of 2.3 or lower being at the greatest risk. All other factors in the regression model were not statistically related to college graduation.

This finding supports Tinto's (1975) student integration model (which is foundational in this area) and has policy and practice implications. For example, what does the finding mean for advising? What does the finding mean for the university's system of tracking students? What does the finding mean for other support functions on campus? Policies and practices need to address these multiple factors, including inadequate academic preparation and meeting essential human needs, such as a sense of belonging on campus.

# **The Educational Benefits of Attending High-Performing High Schools**

Paul Moore, Research Analyst  
Marisa de la Torre, Director of Internal Research Capacity  
Elaine Allensworth, PhD, Interim Executive Director  
University of Chicago Consortium on Chicago School Research

In school districts nationwide, policymakers are implementing an array of reforms that rest on a simple assumption: students do better when they attend schools with high achievement levels. Yet, existing research is insufficient to tell us whether, how, and in what circumstances students benefit from attending these schools.

This presentation will show the effects of attending high-performing schools on a variety of students' outcomes from test scores to college enrollment. High-performing schools will be defined in different ways based on the statistics reported about their prior students' academic attainment—average test scores and graduation rates- and also based on selectivity criteria of schools such as selective enrollment schools. It will examine whether there are benefits from attending a school with marginally higher achievement, or whether effects are only observed where almost all students are low- or high-achieving. It will discern potentially different school effects for students with varying incoming skills.

## **Who Fails Algebra, Who Attends Summer School Credit Recovery Classes, and Who Recovers the Credit?**

Amber Stitzel Pareja, PhD, Senior Research Analyst  
Elaine Allensworth, PhD, Interim Executive Director  
University of Chicago Consortium on Chicago School Research

Many Chicago Public Schools high schools offer credit recovery options during the summer in an effort to get students back on track toward graduation, and there is some evidence that mandatory summer school for students not meeting benchmarks has a positive impact on students' achievement (Matsudaira, 2008; Roderick, Engel, & Nagaoka, 2003). Credit recovery during summer school appears to be a promising mechanism for getting students to learn material they are missing, gain credits, and get back on track to graduate. However, there is not yet strong evidence about the degree to which credit recovery itself changes student outcomes and/or reduces dropout rates.

This paper uses data collected as part of an efficacy trial funded by a grant from the Institute of Education Sciences (IES) National Center for Education Research (NCER) examining to examine which students attend summer school as well as which students recover the credit during summer school. Specifically, the current paper seeks to address the following two questions: 1) What are the characteristics of students who show up for summer credit recovery, compared with (a) students who don't show up but need to recover, and (b) students who succeeded in Algebra I in grade 9? and 2) Which types of students who show up for summer school are most likely to recover the credit? In the current paper, we focus on which students showed up to summer school, which students recovered the credits, and a few short-term measures of outcomes.

We examine data from all students who attended the study schools and who were first-time ninth graders in the study schools during the 2010-2011 school year to compare the background characteristics and previous academic achievement of three groups of students: 1) students who failed Algebra I and attended one of the study summer school classes; 2) students who failed Algebra I but did not attend one of the study summer school classes; and 3) students who passed Algebra I. We also examine the characteristics of students who successfully recovered the credit compared with those who did not recover the credit.

This paper utilizes data on students' background characteristics (race/ethnicity, socioeconomic status, gender, and special education status), students' academic achievement (number of credits accumulated, grades, test scores, and attendance), and students' credit recovery during Summer 2011 or Summer 2012 to examine the research questions. The analyses are largely descriptive and provide detailed picture of who attends summer school and who passes summer school.

The findings indicate that, based on their background characteristics and prior achievement, students who show up for summer school credit recovery courses are more advantaged than those who do not show up, and that those who recover the credit are better off than those who do not.

When implementing summer school credit recovery courses, schools may want to target students who are on-track or almost on-track during the year since they are more likely to show up to summer school as well as more likely to recover credits compared with their peers who have failed many courses and are far off-track. Students who are far off-track may be in need of more intensive intervention efforts than can be offered in the standard summer credit recovery program.

## **Being a Gifted Adolescent Girl in the School House: Making Sense of Her World**

Julie Devaud, Doctoral Candidate, Educational Leadership  
DePaul University

My study goal is to make visible the lives of adolescent gifted girls and bring their experiences and perceptions into research literature. My commitment is to exploring and illuminating the lives of these girls. Based on feminist epistemology and methodology, I have developed a critical ethnographic portrait of each of my four research participants. My methodology fully explores and captures the richness and nuances of gifted girl's experience in the world in general and her schooling in particular. I collected my primary data from multiple in-depth exploratory interviews using open-ended questions designed to encourage the participant to discuss her own thoughts. I used narrative inquiry to guide my interviews. After data collection, I coded my interviews using grounded theory, grouping and regrouping thematic categories to detect patterns and connections which helped my thinking and analysis. Using the works of major theorists in education, philosophy, feminism, psychology, sociology, and gifted education, I made the connections between the psychology and sociology of education and its relationship to gender, adolescence, giftedness, and identity. Thus far, young women are doing surprisingly well. Though math anxiety still lurks in their minds, they are respected by their peers and teachers, who encourage, challenge and support them. They have found significant adult mentors to assist them with academic and personal goals, and their stable family lives are critical to their success and happiness. The young women appear to be immune from negative media influences and see Facebook as their media, which empowers and frees them in extraordinary ways. In my research, I argue that Illinois education policy needs to be more responsive to the needs of gifted students and to girls in particular. In this difficult era of budget constraints, gifted programs are cut. These students are our future leaders; they need to be groomed carefully and kindly by their education systems. The gifted students of rural Illinois school districts need as much care as those I interviewed in an elite Chicagoland setting. Each student deserves the right to reach her or his greatest potential from K-12.



## **Characteristics of Successful Teacher Mentoring**

John Cook, PhD, Assistant Professor, Educational Administration Program  
Governors State University

According to the National Commission on Teaching and America's Future (2003), the phenomenon of early departure from the teaching profession is due in part to the absence of effective mentoring practices. The quality of a mentoring program for new teachers has long and short-term impact on retention, skill attainment, disposition, personal growth and allocation of financial resources.

My descriptive research study titled Examining the Mentoring Experience of Teachers examined the perceptions of 97 former graduate students from Governors State University's Educational Administration Program regarding the quality and quantity of their mentoring experience and their suggestions for mentoring implementation. The research questions were: 1. What is the percentage of teachers who receive mentoring during their first year? 2. How is mentoring assigned to first year teachers? 3. What are the perceptions of teachers regarding their mentoring experience?

Email solicitations were sent to 250 former students to request their participation. Participants were directed to [www.surveymonkey.com](http://www.surveymonkey.com) where they were asked to respond anonymously to 8 close-ended and 2 open-ended questions. The sample for this research study consisted of 97 participants

Findings by other researchers identified in this study provide significant corroboration of this researcher's evidence regarding the significance of effective teacher mentoring as well as the negative impact of not having a teacher mentoring program or having an ineffective teacher mentoring program.

# **Enhancing the Quality of Early Math Instruction in Community College Early Childhood Education Programs**

Lisa Ginet, EdD, Assistant Director for Instruction,  
Emma Wellman, Research Intern  
Early Math Collaborative  
Erikson Institute

## **Study Objectives & Theoretical Framework**

In Illinois, ECE programs in community colleges are a major site of teacher preparation for both childcare and Head Start programs, and yet early math is sorely lacking from the coursework in these programs. To ensure mathematically competent teachers in our early childhood classrooms—and so to help our young children be prepared for elementary-level mathematics—we must increase and enrich the time dedicated to preparing these teachers to teach math. In this study, the Early Math Collaborative (EMC) at the Erikson Institute aims to help teachers of young children be better prepared to do just this.

## **Research Design**

We have collected data from both faculty and students in ECE programs in Chicagoland community colleges, using focus groups, field tests, and surveys. Thus we are integrating qualitative and quantitative data to understand how early math is taught in community colleges, and the impact of our intervention.

- Focus Groups focused on faculty's experiences in integrating and implementing the EMC materials in teaching their courses, as well as their experience of the training they'd received.
- Field Testers took detailed notes after using Erikson materials in their classrooms. These classrooms were also observed by an EMC researcher twice per semester.
- Surveys assessing student's attitudes, knowledge and skill were administered to students at the beginning and end of the semester. Responses had also been collected in Spring 2012 from students of faculty who had not received intervention.

## **Summary of Findings**

Analysis is ongoing; however preliminary results suggest the following:

- The intervention implemented by the EMC at Erikson made a difference in the attitudes, beliefs and competencies of community college students.
- Faculty members were eager to learn, implement, and share the Big Ideas and other Early Math Collaborative materials; their teaching changed for the better.

## **Implications for Illinois Education & Policy**

The quality of an undergraduate teacher education program relies on the quality of its instructors, their content knowledge, and their approach to students. We have learned much about how community college ECE programs function and about their strengths and needs in early math. We have incorporated what we have learned into the development of materials and training to strengthen early mathematics education in community colleges. We aim to disseminate the learning from this project to a wider audience of pre-service and in-service teacher educators throughout Illinois.

# **Envisioning New Landscapes: Chicago Teachers Reflect on Three Years of an Arts Partnership**

Louanne I. Smolin , EdD, Senior Researcher  
Della R. Leavitt, PhD, Research Associate  
LIS Research Consulting

Joseph Spilberg, Research Associate  
Chicago Arts Partnerships in Education

## **Goals/Objectives**

The International Baccalaureate-Teaching Arts Project (IB-TAP) is a U.S. Department of Education funded collaborative initiative between Chicago Arts Partnerships in Education (CAPE) and selected Chicago Public Schools with Middle Years IB programs. IB-TAP is designed to improve both teacher instruction and student performance. Drawn from the larger research agenda, the goal of this qualitative study is to gain insights into how the long-term arts partnership contributes to IB-TAP teachers' professional growth.

## **Theoretical Perspective**

Arts-integration provides expanded opportunities for classroom teachers to deepen academic curricula, yet these “new landscapes” can create challenges. As teachers strive to integrate the arts, they must often “teach in ways they have never taught before-and probably never experienced as students” (Darling-Hammond & McLaughlin, 1995, pg. 642). Professional development is an important catalyst for teachers' transformations. The conceptual framework for this research draws from professional development literature that advocates examining the relationships between teachers' professional development experiences, their classroom practices, and the effects upon their students (Desimone, 2009).

## **Research Design and Methods**

Researchers conducted three annual interviews from 19 classroom teachers from various content areas representing all six IB-TAP partner schools. Using a grounded theory approach (Glaser & Strauss, 2010) the researchers analyzed participants' interview reflections to uncover patterns and conceptual linkages in teachers' thought processes such as those related to Arts-Integration, Collaboration, Teacher and Student Learning.

## **Findings**

Analysis suggested frequent co-occurrences of the themes of Collaborations: Between Teachers and Teaching Artists, Modeling Collaboration for Students, Collaboration between Students; Increased Student Engagement with the Content Areas within the Co-Constructed Curricula; and Teachers' Learning from Teaching Artist. Also, Collaboration between Teaching Artist & Teacher frequently co-occurs with teachers' perceived changes in Student Learning; Creativity, and Teacher Learning with Technology. This indicates that collaboration helped teachers to better recognize student learning using new methods that include technology. Through these arts-integrated units, teachers often noticed students' talents who had previously underperformed in academic areas, and raised expectations for students' achievement.

## **Evaluation of an Early Math Intervention and Development Project**

Amanda Stein, PhD, Senior Research Associate, Early Childhood Education  
Elizabeth Rothkopf, Project Manager, Early Math Initiative  
The Ounce of Prevention Fund

Jie-Qi Chen, PhD, Principal Investigator, Early Math Collaborative  
Erikson Institute

### **Study Goals/Objectives**

Research shows that children's early mathematics understanding significantly predicts school achievement in later years, and early intervention specifically focused on mathematics has been shown to have broad positive effects on student learning. Yet early childhood educators often avoid teaching core mathematical concepts, and the quality of mathematics teaching at the preschool level is extremely variable. Therefore, funded by the CME Group Foundation, in 2010 the Ounce of Prevention Fund undertook a multi-year Early Math Intervention and Development Project in partnership with Erikson Institute to improve the math skills of low-income young children in Chicago. The intervention aims to: (1) increase practitioners' pedagogical content knowledge, math-related dispositions, and confidence, (2) advance the rigor of early math instruction in preschool classrooms, and (3) increase preschool-age students' mathematical knowledge and skills. Based on a subset of Erikson's "Big Ideas" of math, the development portion of this initiative endeavors to: (1) design and implement a series of family math activities and corresponding materials intended for family support staff to advance parents' understanding of early math development and provide them with strategies to support their children's math learning and development at home, and (2) develop and pilot a corresponding curriculum guide and set of experiences that reflects the precursors of these concepts in infant-toddler development for teachers.

### **Research Design & Methodology**

**Program and Sample:** The Ounce of Prevention Fund operates the Educare School on the south side of Chicago. Educare Chicago currently serves 149 children and their families in a full-day, full year high-quality early education program beginning at birth and continuing to age five. From August 2011 through February 2013, 16 teaching staff, 5 family support staff, 7 supervisors and 4 additional support staff participated in the Early Math intervention which involved half-day Learning Labs led by the Erikson Early Mathematics Education Project and an intentional coaching cycle.

**Data Collection and Analysis Methods:**

All teacher and student measures were administered in the fall of 2011, prior to the first Learning Lab and again in the spring of 2012. Pre-post analyses were conducted for Year 1.

**Teacher Measures:** Teacher measures included an instrument to assess teachers' Pedagogical Content Knowledge (PCK) in early math; a questionnaire about their math-related Attitudes-Belief-Confidence, and observation of a math lesson.

**Student Measures:** Two measures of preschoolers' mathematical knowledge and problem solving were administered.

### **Summary of Findings from Year 1 Evaluation**

Following the intervention, preschool teachers' math-related confidence and PCK increased significantly. Teachers demonstrated gains in their abilities to recognize and respond to children's developmental trajectories in their math learning and to actively engage students in math-related activities. From fall to spring, preschool students made gains in all 9 areas of mathematical skills assessed

### **Discussion and Implications**

Implications of the evaluation findings for Illinois education policy and practice and the progress on the development of family math materials and math materials for infant-toddler early care and education providers will also be presented.

# **An Examination of Beliefs and Perspectives about Teaching Mathematics in Early Childhood Classrooms**

Sham'ah Md-Yunus, PhD, Associate Professor, Early Childhood Education  
Geena Anselmo, Graduate Student  
Eastern Illinois University

## **Purpose and Research Questions**

The study examines children and teachers' beliefs about which instructional strategies teachers use are effective in learning mathematics in kindergarten, first, second, and third grade. Student's learning styles and understanding mathematics is critical not only to their mathematics performance on standardized tests but also for teachers to be aware of which teaching strategies work best for their students.

The study is guided by three research questions. The questions are as follows: 1. How do students feel about the instructional strategies their teachers provide during mathematics lessons? 2. Do students understand mathematic materials being presented to them by their teachers? 3. Which teaching strategies work best for young children in learning mathematics?

## **Method and Data Source**

Eight teachers and ten children from kindergarten, first, second, and third grade classrooms in East Central Illinois participated in the study. The Mathematics Beliefs Scale (Fennema, Carpenter, & Loef, 2000) was used to measure teachers' beliefs about mathematics. The Assessing Students' Beliefs about Mathematics survey questionnaire (Ambrose, Philips, Chauvot, 2007) was administered to the children and the LSC Classroom Observational Protocol, modified from Horizon Research Inc. (2002), was used to observe classrooms during mathematics instruction. In addition to descriptive statistics, a 3-way Mixed Factorial ANOVA was conducted to examine differences among the factors of age, grade, and their combined effects.

## **Summary of Findings**

Results indicated most students felt they learned best with the use of manipulatives and with technology incorporated into the classroom. However, results from classroom observations revealed strategies most used by teachers included worksheets and individual seatwork. Although no significant differences were indicated between age, gender, and grade level, students in kindergarten and first grade responded that their teacher made math fun. Students in second and third grade answered questions indicating their anxiety about assessments in mathematics. Teachers reported the use of smart boards for mathematics instruction was often restricted due to limited training to operate the technology to the highest potential for flexible classroom use.

## **Implications for Illinois Education**

This study brings a perspective from children and teachers in rural setting schools on how their beliefs influenced mathematics learning. Findings of the study could be significant to the body of research to inform educators of how children's learn and understand mathematical concepts in kindergarten, first, second and third grades classrooms in the rural areas. Understanding how children's thinking and learning of mathematics is critical to helping teachers use the right instructional strategies and teaching materials in the early grades. Effective instructional strategies are critical for children not only for test scores but also for the children to be able to transfer the skills in every life. The information in this study will guide the continued progression of technology in education and the need for teachers to be properly trained in order to meet the needs of students by implementing strategies appropriate to student learning style.

# **Examining Culturally Responsive Pedagogy in Multi-Ethnic Ninth Grade Classrooms**

Andrew Brake, PhD Candidate & Instructor  
School of Social Service Administration  
Hannah Graham, Special Projects Coordinator, 6to16,  
Urban Education Institute  
The University of Chicago

## **Background & Goals**

Recent research in Chicago has called for an improvement in the engagement and performance of low-income ninth grade immigrant youth (Gwynne et al., 2012; Stevens, 2010). Culturally Responsive Pedagogy (CRP) provides specific approaches towards this effort (Ball, 1995; Lee, 1995; Cammarota, 2007) but most CRP studies have been conducted in single-ethnic classrooms. While evidence of effective practices in multi-ethnic classrooms remains limited (Ladson-Billings, 1995; Phillippo, 2011; Winn, 2011) the literature tends to agree that a culturally relevant educational environment includes teachers who use students' backgrounds, lived experiences, and perspectives in creating culturally responsive spaces, practices, and curriculum (Winn & Johnson, 2011), that the spaces created are democratic, validating, and transformative in promoting consideration of difference (Gay, 2010; Winn & Johnson, 2011), that students' cultural competence is "sustained" (Paris, 2012; Gay, 2010), and that students succeed academically (Ladson-Billings, 1995). Using Winn & Johnson's (2011) framework to examine CRP in multiethnic ninth grade classrooms in one Chicago public high school, this study has three goals: 1) to describe ninth grade teachers' CRP in multi-ethnic classrooms; 2) to assess how students perceive of CRP's impact on their classroom behaviors, engagement, and performance, and; 3) to consider the implications on teacher practice and training in Illinois high schools serving low-income immigrant youth.

## **Methods**

Brake (forthcoming) examined ninth grade teachers' relationship-building approaches in eight ninth grade Core classrooms and its impact on sixteen first- and second-generation immigrant students during one academic year. This study closely examined the practices of three of this study's teachers – one English, one science, and one social studies – who explicitly described using CRP. Using a grounded theory method (Strauss & Corbin, 1990), data were coded to examine teachers' CRP and the impact on students' classroom behaviors, engagement, and performance.

## **Findings**

Developing a CRP requires a specific orientation to social inequality and student-centered practices, extensive, intentional, culturally relevant course planning, routine progress-monitoring and feedback systems, and an ongoing commitment to improving ones' cultural competence, professional growth, and self-assessment. All three teachers used a wide array of CRP in their classrooms. Students described the social studies teacher's courses as discussion-based, relevant to students' cultural backgrounds and interests, and regularly involving and respecting multiple perspectives. Students described their science teacher's courses as relevant to their lived experiences, important for helping them think about their role in the earth's environment, and supportive in enhancing students' help-seeking and academic performance. Students described their English teacher's courses as validating of their cultural backgrounds and academic abilities and struggles, highly responsive to their personal and academic needs, and essential for learning about their peers' strengths and backgrounds. As the year progressed, students across all three classrooms reported a continuously deepening engagement in their interest and participation in all three classrooms, particularly in English. Lastly, compared to all other study participants, students in these three teachers' courses had the fewest course 'F's and 'D's at the end of semester 1 and semester 2.

## **Implications**

Illinois high schools serving low-income immigrant youth who are searching for effective means of improving the engagement and performance of immigrant youth should consider assessing their own faculty's CRP to provide improvements in professional training and capacity, particularly in multiethnic high schools with students most vulnerable to poor school outcomes.

## **Examining Quality of Mathematics Teaching in Early Childhood Classrooms**

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Jeanine Brownell, Assistant Director of Programming  
Jennifer McCray, PhD, Assistant Research Scientist, Director  
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High quality mathematics education for young children builds a strong foundation for future mathematics learning. Evidence is clear that early mathematics achievement is associated with later school success, but the field lacks clear definition of excellence in early mathematics teaching. We are also short of available tools to assist teachers and teacher educators in monitoring or assessing classrooms around mathematics teaching. The purpose of this poster is to introduce High Impact Strategies in Early Mathematics, (HIS-EM), an observational tool designed to identify and measure the frequency of high quality mathematics teaching practices in preschool through third grade and to report its early findings. A total of 192 Pre-K through 3rd grade teachers in 16 Chicago public elementary schools (8 intervention schools and 8 comparison schools) participated in the study in Fall, 2011 and Spring, 2012. These schools serve primarily low-income, ethnically diverse students. Intervention group schools participate in early mathematics professional development program, and attend learning labs, receive individual coaching and participate in school-based grade level meetings. The preliminary results indicate great variability in early math teaching practice among observed classrooms. Our preliminary analysis revealed that while there was not a significant difference between the two groups at Fall 2011, at Spring 2012 the intervention group ( $M=38.5$ ) scored significantly higher than the comparison groups ( $M=31.8$ ),  $t(189) = 4.420$ ,  $p < .05$ . The present study indicates the potential of HIS-EM as a tool to document the quality of teaching in early mathematics.

## Focusing on the Whole Teacher in Teacher Professional Development

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This presentation describes a conceptual framework for in-service professional development—the Whole Teacher approach and its utility power to effective classroom practice. The *Whole Teacher* framework emphasizes promoting all aspects of a teacher’s development, including attitudes, knowledge, and practice. It attends simultaneously to the social/emotional, cognitive, and behavioral aspects of a teacher’s growth. As a conceptual framework, it provides an over-arching understanding of “what works” and “why works” in addition to “how to ensure PD works.”

Putting the framework in operation, we describe a project proven to be effective in helping to develop teachers’ competence and increase children’s performance in early mathematics. We focus on how the *Whole Teacher* framework guided the project’s design, implementation, and program evaluation. We illustrate the logic model of the intervention program and report on its positive results on child learning outcomes.

Utilizing a quasi-experimental design, pre- and post-measures with intervention and comparison groups have been collected. Specifically, children’s mathematical abilities were measured using Subtest 10 of the Woodcock-Johnson III (WJ-III) Achievement Battery. A total of 154 three- to five-year-olds participated in the study. Of these children, 91 were randomly selected from 12 participating classrooms and served as the intervention group. An additional 63 children randomly selected from matched classrooms served as the comparison group.

Two-level Hierarchical Linear Modeling (HLM) was used to determine how much variance in changes in WJ-III scores could be attributed to teacher participation in the intervention. The results indicated that for every school year children spent in the classrooms of teacher-participants, they gained an additional three months of mathematical learning. The growth of children who began the school year behind national norms was closer to five additional months of learning. These results point to the positive impact of the program on children’s learning and its particularly significant effects on the children most in need of help.

For PD to deliver on its promise in education, the field needs not only evidence-based effective strategies, but also conceptual frameworks that are grounded in theories of teacher change and help explain and predict for what works in teacher professional development. The *Whole Teacher* framework is one such attempt. Our experience speaks of its promising future. The framework is based on the premise that teacher attitudes, knowledge, and practices interact and influence each other. It promotes PD strategies that build on the interrelationships and offers teachers multiple ways of learning, doing, and succeeding. Our work focuses primarily on math education during early childhood years; we believe however that the framework applies for other content areas across the age range.



## **How Do Student Characteristics and Environmental Factors Influence a Community College Student's Decision to Enroll In-District or Out-of-District?**

Nick Zyznieuski, Illinois Education Research Council  
Southern Illinois University Edwardsville

This paper examines the student characteristics and environmental factors related to a community college student's decision to enroll either in-district or out-of-district. Student characteristics included: race, gender, high school rank, high school GPA, and environmental factors included: number of siblings, parents' income, and the distance between a student's home area and the in-district community college. Results indicate that academic characteristics did not play a major role, as a student's high school GPA had no bearing on his or her decision to enroll in-district. Results also indicate that as the distance between a student's home area and the in-district community college increases, students were less likely to enroll in-district. With regards to policy implications, these results may signify that community colleges need to consider opening satellite campuses in order to better serve its in-district students, or work collaboratively with near-by out-of-district community colleges in order to meet the needs of students.

## **Integrating Conceptions of Science Inquiry across University and Elementary Classrooms**

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Alan Rossman, PhD, Associate Professor, Science Education, National College of Education

Diane Salmon, PhD, Associate Professor, Educational Psychology, National College of Education

Ofra Peled, PhD, Associate Professor, Natural Science

National-Louis University

To better prepare undergraduate teacher candidates for science inquiry teaching, we initiated a design project involving university faculty, Chicago Public School science teachers, and teacher candidates in the design of a common instructional tool that could be used across science teaching - learning contexts (Morris & Hiebart, 2011). The aims of the collaboration were to: 1) compare and integrate relevant perspectives on the value, purposes, and challenges of science inquiry and 2) guide teacher candidates in seeing student approximations of science inquiry in ways that can inform their science teaching.

For this investigation, two data collection tools (On-Line Survey and Classroom Science Inquiry Observation Tool) were developed. Survey data indicated that the majority of participants viewed the NSES science inquiry competencies as central to their conceptions of science inquiry and highly valuable to their students' science learning. There was more variability in their reporting of how frequently those science competencies were practiced. The Classroom Science Inquiry Observation Tool provided a means for participants to investigate those variations and discrepancies revealed in the survey data. Also, the data from the observation tool clearly showed the contour of science inquiry throughout the unit so it provided a talking point for teacher candidates when they reflect on their instruction.

Consistent with a practice-based approach, this investigation helped all participants to decompose the practice of science inquiry, understand the challenges it poses in classroom implementation, and support their vision of inquiry-based science learning.

## **Integrating Curriculum for Academic Growth**

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Eastern Illinois University

Julia Colombo, Team Leader for 6 Gold  
Mattoon Middle School

The purpose of the study was to discover if altering the traditional teaching methods used for at least the past 2 years to include authentic and active, student centered strategies would have a positive impact (growth) of knowledge retention for the students. Team 6 Gold had not attempted an interdisciplinary unit in the two previous years that this team had been intact.

Currently, the 6th grade social studies textbook, the basis for this interdisciplinary unit, is written at an 8th-9th grade reading level, which exceeds the comprehension level for most students. The students have struggled with this unit in previous years. Team 6 Gold decided to rewrite their curriculum in order to reach the students at a comprehension level appropriate to the grade level using active learning strategies and other multiple intelligence concepts.

Prior to beginning the unit, students on both 6th grade teams completed multiple intelligence profiles in order for the teachers to gain an awareness of the learner styles present in each classroom. Learning styles were assessed to compare the populations on the two teams, given the variance in strategies used by the control group (lecture and worksheet) vs. the experimental group (active learning based on MI data). Population of students in each MI was used as a lens for interpreting growth data on the standardized exam given three times during the study. In addition to variables in MI, demographic data regarding ethnicity, free/reduced lunch, sex, and special needs (504, IEP, Gifted etc.) was identified within the coding used to identify students and their growth on exams. Students were removed from the study due to five days absence, or more, during the term of the study. Participants in the study numbered 210 at the completion of all phases.

A pre-test, final exam and retention check were given by both teams. The retention check took place two weeks after the final exam. All three tests used the approved textbook exam questions. T-tests were run for six different combinations to discover growth/change:

1. Pre-test between control and experimental
2. Retention check between control and experimental
3. Pre-test and Final exam control group
4. Pre-test and Final exam experimental group
5. Pre-test and 2 week post Final retention check control group
6. Pre-test and 2 week post Final retention check experimental group

As predicted, scores on the pretest were low for both groups, revealing no significant data. Teachers from the experimental group reported stress and satisfaction on both the student and teacher aspects of implementing this study. Both teams also expressed a strong desire to modify the unit for the next year and implement with both teams of students. The motivation to adapt the curriculum came not only from the difference in test and retention scores revealed through this study, but also the general excitement and enthusiasm expressed by the students and faculty involved in the experimental unit. Encore teachers modified curriculum to include coordinating topics as they witnessed the impact of the interdisciplinary unit as well. For the school as a whole, it was an exciting and productive time spent in the Renaissance.

## **Investigating Professional Self-Efficacy Development in Pre-Service Teachers**

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Catherine Polydore, PhD, Assistant Professor, Counseling and Student Development  
Eastern Illinois University

This study examines and describes the self-efficacy beliefs of pre-service teachers enrolled in an educational psychology/secondary teaching methods block course, provides data to explore the psychometric properties of a Pre-service Teacher Self-efficacy Scale (PTSS), and examines the effect of enrollment in the block course on pre-service teachers' self-efficacy.

Data have been collected from over 300 students enrolled at an Illinois public university. Participants completed a 75-item scale intended to measure pre-service teachers' self-efficacy beliefs about tasks done by high school teachers. Items were created by reviewing the syllabi and learning objectives for the two blocked courses. Participants responded to each item on a six-point, graphical scale.

Principal component analysis with Varimax rotation was used to reduce the number of items, identify the underlying structures, and produce a parsimonious and conceptually logical model. Analyses resulted in a final scale with fifty items distributed among ten components. Participants showed varying levels of self-efficacy across the ten factors at both the beginning and the end of the semester. Positive gains in self-efficacy in all ten factors were made over the course of the semester; participants reported the highest self-efficacy in technology use, communication, lesson design and delivery, standardized assessment, and content literacy.

The investigators are extending this work by having pre-service teachers in other programs participate in data collection in order to explore the scale's usability across preparation programs. They are also designing protocols to discover how self-efficacy is developed during preparation programs, exploring factors related to classroom instruction, fieldwork experiences, and the social cognitive processes by which pre-service teachers interpret their own performance.

## **A Look at Teachers' Pedagogical Content Knowledge of Early Mathematics**

Yinna Zhang,<sup>1,2</sup> Doctoral Research Fellow  
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This study explores teachers' knowledge of early mathematics. It examines specifically the degree to which preschool and early elementary teachers possess pedagogical content knowledge in early mathematics.

Pedagogical content knowledge (PCK) represents the blending of content knowledge and pedagogy that is needed to effectively promote learning (Shulman, 1986). PCK for early mathematics consists of three components: what—a deep understanding of mathematics content necessary for teaching young children; who—knowledge of learners' conceptions about specific mathematics content; and how—math specific pedagogical knowledge. The integration of these three components is essential for successful teaching (Park & Chen, 2012).

A total of 161 teachers of Pre-K through grade 3 in a large urban public school system in the Midwest participated in the study. The teachers completed the Pedagogical Content Knowledge in Early Math (PCK-EM) survey—an online survey utilizing video stimuli to assess teachers' knowledge of the content, pedagogy, and students in early mathematics education. The survey consists of nine open-ended questions related to the video. Teacher responses to the questions are coded using a 7-point Likert scale, which is further grouped into low (1-2), medium (3-4), and high (5-7) scores in the analysis, corresponding to limited, basic and advanced mathematical understanding. Inter-rater reliability ranged from 81.8% to 90.9% for the nine questions among three coders. Teachers completed the survey within two months at the beginning of the school year.

The results of the present study clearly indicate that a large percentage of our preschool and early elementary teachers lack adequate pedagogical content knowledge of early mathematics. Overall, only a small percentage of teachers (1.9% to 18.6%) received high ratings in their responses. In contrast, low ratings were achieved by between 26.7% and 48.4% of teachers across the survey's nine questions. In particular, less than 2% of the teachers received high scores for responses to the question of whether the children in the video understood the math ideas of the activity. As well, only 6.2% of the teachers received high ratings for their responses to the question about what prior knowledge children need to have in order to engage in the activity. Last but not least, almost half of the respondents (48.4%) knew little about effective strategies to help children who are behind.

It is supported that early childhood teachers' PCK for early mathematics needs improvement. Significant time and resources need to be allocated to help teachers of young children gain pedagogical content knowledge in mathematics.

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## **Master of Science in Middle School Mathematics Education (MSME): An Examination of Program Outcomes and Effectiveness**

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The Master of Science in Middle School Mathematics Education Program (MSME) was developed jointly by the DePaul School of Education and the Department of Mathematical Sciences, in partnership with Chicago Public Schools (CPS), with the aim of increasing students' access to high quality mathematics instruction in the elementary grades. High quality instruction is thought to be the result of increased content knowledge, particularly if it is connected to the experience of teaching in the classroom (Hill et al, 2008; Cohen & Hill 1999). This is at the heart of the MSME program which seeks to strengthen the mathematical skills of CPS teachers via professional development, increased content knowledge, promotion of curricula, and increased classroom use of non-dyadic teaching strategies and technology.

Since 2009, three staggered cohorts of Chicago area teachers (N=51) have completed graduate-level courses in number sense, mathematical thinking, geometry, and algebra along with standardized pre/post measures of content knowledge (Diagnostic Teacher Assessment of Mathematics and Science or DTAMS), math knowledge for teaching (Content Knowledge for Teaching Mathematics measures or CKTM) and self-report surveys of classroom practice (Surveys of Enacted Curriculum). Qualitative measures of program impact were gathered from periodic focus groups and course evaluations. Changes in student math knowledge and learning have been measured using the Illinois Standards Achievement Test (ISAT), the Mathematics Assessment Resource Service (MARS) and the Grade 8 annual Algebra Exit exam.

Three separate cohorts completed approximately three years of graduate level coursework in mathematics content and mathematics instruction. All cohorts completed pre/post measures of content knowledge (DTAMS) and math knowledge for teaching (CKTM). Presenters have noted statistically significant improvements across all cohorts in certain areas of content knowledge (Algebra;  $d=2.70$ ) and pedagogical knowledge (Geometry;  $z=0.27$ , and Number Sense;  $z=0.56$ ). Researchers have also found statistically significant changes in content and pedagogical knowledge within each cohort on these same measures.

Other measures such as self-report on classroom instruction and qualitative measures were unique to certain cohorts. Overall, these additional measures suggest a similar positive trajectory as that of the content knowledge and math teaching measures. Teachers reported increases in program approved pedagogy in their classrooms (SEC). About half of the teachers surveyed reported having spent half or more of their instruction time implementing the content (48%), instructional resources (48%), strategies (54%), and STEM/Technology (46%) that they had learnt through the program. Content and pedagogy notwithstanding, teachers reported being pleased with the program, particularly its applied emphasis on actionable pedagogy based on "real world" research. As students, teachers performed well with an average GPA of 3.63.

Additional, though less conclusive, measures of program impact include the high level of endorsement gained during and subsequent to the program (~30 teachers) as well as the teachers' students' ISBE scores (75% met or exceeded state standards) and MARS scores (change from 69% to 77%). While these are promising results suggesting that teachers are experiencing growth, even improvement, in their math knowledge and teaching practice, the rate of change was not uniform for all cohorts on all measures. Individual teacher characteristics (teaching assignment, prior content knowledge, level of participation) as well as program administration characteristics (course content focus) may influence results.

## **The Relationship of Neighborhood Crime to Post-Secondary Educational Attainment in Illinois: A Longitudinal Study of the High School Class of 2002**

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This research examines the impact that crime, poverty and race have on student's long-term educational outcomes. The primary focus will be to examine the relationship between high school community environment and postsecondary education (PSE) completion at 4-year institutions among students in Illinois over a seven year period. This study focuses on crime and the relationship of different crime rates within a city or neighborhood with students' ability to pursue PSE. Different classifications of crime (i.e., nonviolent, violent) are examined to explore the relationship of exposure to violent crime and PSE outcomes. The secondary research goal will be to examine the role that the racial composition of the high school community environment has on the relationship between PSE and crime. Poverty rates will be included as control variables in the study.

The motivation behind this study stems from the realities of racial and socioeconomic stratification in the United States and the reification of poverty over multiple generations. The theoretical framework with which the study will work from will be an extension of the models developed by Leventhal and Brooks-Gunn (2000) pertaining to their study of neighborhood effects and student development. Furthermore, the study will also incorporate the works of Trent (2007, 2004, 2004) that focuses on access into higher education and the works of Wilson (1987, 1996) centered around concentrated poverty and the "culture of poverty". Also, the multiple works produced by the Illinois Education Research Council based on the Longitudinal Study of the High School Class of 2003 along with most of the prominent research centered on crime, poverty and higher education. These studies will provide the theoretical framework with which to study the effects of neighborhoods, crime and poverty on educational outcomes.

Data on the Illinois high school graduating class of 2003, compiled by Illinois Education Research Council will be the basis for this study (provided by E. Lichtenberger, IERC). This data set will also be merged with the Illinois Uniform Crime Report data and the Chicago Police District data for 2003-2009 retrieved from the Illinois State Police database. Furthermore, measures of poverty and dissimilarity indices from the American Community Survey of the United States Census Bureau will also be integrated. The Longitudinal Study of the High School Class of 2003 will allow for a more in depth analysis due to the length of study done on this particular cohort. The analysis will be conducted from 2003-2010 and it will allow us to examine the school community effects on PSE enrollment and completion over time. The benefit of this longitudinal approach is that we can analyze how school community environment effects relate to the school's completion trajectory over time and whether these effects differ across racial/ethnic groups.

## **Relaxation Skills & High Stakes Testing: Role of SES & Environmental Factors on Anxiety Levels**

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Sarah Puchalski, Graduate Student  
J. Adriane Tschantz, Graduate Student  
Rob McKinney, Graduate Student  
Luz Lomeli, Graduate Student  
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### **Purpose**

This study sought to relieve test anxiety in high school juniors preparing to take the ACT by implementing relaxation training. Results showed that relaxation training in the experimental group appeared to have a significant effect on lowering overall test anxiety between pre-test and post-test. These findings are significant because the implementation of deep breathing and progressive muscle relaxation is cost-effective and does not require specialized training or other resources. The instruments are accessible, regardless of socioeconomic status, and research indicates that they are effective among various age groups (Larson, El Ramahi, Conn, Estes, & Ghibellini, 2010; Tatum, Lundervold, & Ament, 2006; Tseng & Wang, 2011).

### **Methodology**

Participants included 107 eleventh grade students from a Midwestern public high school. All participants completed the Westside Test Anxiety Scale (WTAS, Driscoll, 2007) at pre-test and a short demographic questionnaire. Participants with the highest anxiety scores were assigned to the experimental group, where the other 50% participants with lower scores were assigned to the control group. Relaxation techniques were taught to the experimental group by a research team for a period of five weeks. After five weeks, all students were again given the WTAS at post-test.

### **Summary and Implications for Illinois Education**

The data indicated that the treatment decreased perceived test-anxiety among the experimental group as indicated by the WTAS. The control group's WTAS scores did not reveal any notable change in perceived test anxiety. These findings are significant because the implementation of deep breathing and progressive muscle relaxation is cost-effective and does not require specialized training or other resources. The instruments are accessible, regardless of socioeconomic status, and research indicates that they are effective among various age groups (Larson, El Ramahi, Conn, Estes, & Ghibellini, 2010; Tatum, Lundervold, & Ament, 2006; Tseng & Wang, 2011). The fact that SES was also positively correlated with participants' perception on the importance of going to college provides further evidence to suggest a discrepancy among socioeconomically disadvantaged youth.



## **Technology and UDL in Urban Classrooms: An Examination of USTEP Student Teachers' Perception and Use of Technology for Differentiated Instruction**

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National Louis University

The main purpose of the study is to examine the perceptions of a cohort of student teachers from Urban Scholars Teacher Education Partnership Program (USTEP) and their mentor teachers regarding the use of technology and differentiated instruction in their classrooms. Specifically, the study addresses three questions: how do mentor teachers and student teachers in the USTEP schools perceive their technology knowledge, skills, and preparation, as well as technology use in urban classrooms? What, if any role, does technology play in the design and implementation of instruction by mentor teachers and student teachers? How can the university coursework be improved to better prepare teacher candidates to teach in diverse urban classrooms?

The study is funded by a federal grant titled “Federal Funding for the Improvement of Post-Secondary Education (FIPSE). The ultimate goal of FIPSE is to develop a Faculty Residency Model that embeds faculty in high need, high poverty urban schools for the purposes of fostering a tighter integration between theory and practice in order to better prepare teachers who are more likely to overcome the challenges of “enactment” in complex classroom environments and ultimately improve student learning.

The researchers administered a survey to an entire group of USTEP student teachers and their mentor teachers, followed up with interviews with three selected student teachers and classroom observations to find out how they embed technology in their overall inclusive practices, particularly universal design for learning (UDL). A variety of qualitative data was further collected, including classroom observation field notes, post interviews, unit plans and classroom artifacts. The researchers used the qualitative software NVivo for coding and development of patterns especially relating to the student teachers' use of technology aligned with the three principles of UDL: multiple means of representation, multiple means of engagement, and multiple means of expression.

Results of data analysis indicated that the student teachers felt least prepared in the use of technology to adapt instruction for diverse learners. Triangulation of data revealed that the degree to which technology was integrated to accomplish UDL was affected by factors such as availability, technological knowledge, knowledge of students, self-efficacy, and mentor teacher support. The study suggests the need to revamp existing university course work to reduce the gap between theory and practices. It is important that the course work be redesigned to connect educational theory and practice by incorporating a variety of representations of teaching in local school contexts and embedding opportunities for pre-service teachers to approximate inclusive practices, technology for differentiated instruction and UDL in this study, while engaging in critical reflections about ways of enacting these practices in the constraints of potential local contexts of high need urban schools.

## **Trends in Students' Confidence of Future Majors and Occupations: Lessons Learned from the Illinois High School Class of 2002-2005**

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Eric Lichtenberger, PhD, Associate Director for Research, Illinois Education Research Council  
and Assistant Research Professor, Southern Illinois University Edwardsville

The paper builds on the authors' previous explorations of Illinois high school students' confidence in their intended college majors. Drawing on the ACT Student Interest Inventory data, the research focuses on high school students who intend to major in the Science, Technology, Engineering, and Mathematics (STEM) fields in college. In 2012, a report was released that found women, African American students, low-income students, and students who planned to complete a vocational/technical or professional degree to be most confident in their planned college majors (George-Jackson & Lichtenberger, 2012). Further analysis was conducted on students' college readiness, as well as their future preferred occupations, revealing that student with clear educational expectations for a specific occupation, such as becoming a teacher or working in the health sciences, were more confident in their future plans than other students (Lichtenberger & George-Jackson, 2012).

All high school juniors in the State of Illinois are required to take the ACT as part of the Prairie State Achievement Exam. Prior to taking the ACT, students are asked to complete a short survey which includes a series of questions about their intended college major, their future occupations, and how confident they are in these plans. The majority of the study presented here focuses on the Illinois High School Class of 2003, as the dataset includes postsecondary outcomes ( $n \approx 75,000$ ). However, trend analysis of students' intended majors and occupations, draws on the Classes of 2002, 2003, 2004, and 2005 ( $n \approx 264,000$ ). Using descriptive statistics and chi-square analysis, the authors first compare intended majors by gender, race/ethnicity, parental income, and confidence level of their intended major. The analysis is then repeated for students' preferred future occupation. Students with missing data on key variables were not included in the analysis.

The results suggest that students' intended majors and future occupations by field were largely consistent across time. However, there was significant variability between 2002 and 2005 in the fields of Computer and Information Sciences (CIS) and Health Sciences (HS). Overall students' intentions to major in CIS declined from 7.1 percent to 4 percent, while intentions to major in HS increased from 15.9 percent to 19.7 percent. Differences in students' major plans also exist by gender, race, ethnicity, and family income levels, as well as for students who were Very Sure or Fairly Sure of their major. In examining the alignment between intended majors and future occupations, the majority of fields had between 80 and 85 percent alignment (i.e., students planned to major in the field they planned to work in). However, other majors were less aligned, including STEM Teacher Education and Mathematics. By race/ethnicity, African Americans were more open to pursuing an occupation in fields related to their major, including Engineering and Business. For instance, a larger percentage of African Americans intended to major in the Biological and Physical Sciences, but work in the Health Sciences, in comparison to their peers.

The implications of these studies include understanding how Illinois high school students' college major and career aspirations and confidence levels of each, change over time. Early awareness of STEM majors and career opportunities may increase students' confidence to pursue STEM majors in college, as well as their shape their occupational goals. The results also seek to inform the new STEM learning exchanges that are being implemented in Illinois to develop P-20 STEM programs that connect students' career and educational interests.

## **Designing and Implementing the Next Generation of Teacher Evaluation Systems: Lessons Learned from Case Studies in Five Illinois Districts**

Susan Spote, Director for Research Operations,  
Chicago Consortium on School Research at the University of Chicago

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Illinois' Performance Evaluation Reform Act (PERA) requires every district in the state to implement teacher evaluation systems by 2016-17 that address both teacher performance and student growth. For this study, the IERC collaborated with researchers from the University of Chicago Consortium on Chicago School Research (CCSR) to examine the experiences of five case study districts from throughout Illinois as they designed and implemented new evaluation systems. This presentation and the accompanying report, *Designing and Implementing the Next Generation of Teacher Evaluation Systems*, examines the experiences of five case study districts as they designed and implemented new teacher evaluation systems. The presentation will provide a snapshot of how districts assessed and dealt with challenges around cultivating buy-in and understanding; using evaluations for instructional improvement; and reducing the burden on principals. In addition, it examines the on-going challenge of incorporating measures of student growth into teacher evaluation systems. The challenges faced by these cutting edge districts and the strategies they used to overcome them may assist other districts as they engage in their own design and implementation processes.

# **Impact of Labor-Management Collaborations on Teaching and Learning: Findings from the Great Lakes Teacher Union Reform Network (GL TURN) Evaluation Study**

Mary McDonald, Co-Director, Great Lakes TURN Regional Consortium for Educational Change

Sara Kraemer, PhD, Researcher, Wisconsin Center for Education Research  
University of Wisconsin-Madison

## **Background and Study Questions**

This evaluation study assessed the impact of the Great Lakes Teacher Union Reform Network (GL TURN), one of five regional networks whose mission is to improve teaching and learning through effective union–district collaboration. The GL TURN provides unique services and expert support on effective union–district collaboration to district administrators, union leaders, and teachers. Our evaluation questions were:

1. How has GL TURN influenced district–union collaboration within district?
2. How has collaboration influenced teaching and learning at the district and school levels?

## **Theoretical and Methodological Approach**

We adopted a utilization-focused program evaluation approach (Patton, 2008). We used a qualitative design which consisted of semi-structured interviews with union leaders and district administrators. We sampled from Illinois (7 districts), Michigan (2 districts), Minnesota (0 districts), Ohio (1 district), and Wisconsin (2 districts). A total of twelve district administrators and eleven union leaders participated in interviews. Data analysis consisted of thematic content analysis using the QSR NVivo®, a qualitative analysis software tool.

## **Summary of Findings**

We found that GL TURN influenced 14 areas of union–district collaboration: opportunities for networks and peer support; access to content experts; substantive content that frames upcoming and ongoing work; space for reflection, listening, and team building; parameters for effective communication and unifying dialogue; progressive approaches to union leadership; and supporting a shift from a positional to partnership stance.

As district–union teams engaged in collaboration, they expanded their portfolio of work beyond the contract negotiations and into teaching and learning. Some of their areas of engagement in teaching and learning included: teacher evaluation and appraisal systems, program implementation, and curriculum development. Collaboration was meritorious as it enhanced the quality and acceptance of their programs, notably in teacher evaluation systems.

## **Implications for Illinois Policy**

As Illinois districts design and implement their teacher evaluation system, union engagement and collaboration should be considered. To date, there is little research on how unions and districts collaborate in teacher evaluation systems, and this study provides a critical perspective of how to effectively engage unions and districts together to create evaluation systems that supports teacher practice. Many times, teacher evaluation systems fail to engage teachers and unions effectively, and the GL TURN provides an opportunity to model how effective district–union collaboration can positively influence state-mandated system change, such as teacher evaluation. There is also promise to use the model of collaborations to other large scale, teaching and learning initiatives, such as the design of Common Core Curriculum.

## When Needs and Funding Fail to Intersect

Lynn Sikma, Research Assistant  
Jason Swanson, Doctoral Candidate  
Alexis Jones, Research Assistant  
Patricia Brady, PhD, Acting Director  
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### Session Description

Research suggests that comprehensive beginning teacher induction and mentoring programs can improve teacher quality and increase teacher retention (e.g. Wanzare, 2007; Strong, 2006; Fulton, Lee, & Yoon, 2005; Smith & Ingersoll, 2004), and also increase student achievement (e.g. Glazerman, Isenberg, et al., 2010). Such programs incorporate a structured series of supports including professional development sessions, principal involvement, and intensive work with a highly-qualified mentor. Illinois was an early leader in the area of beginning teacher induction programs, and starting in 2006, the Illinois State Board of Education was able to fund grants to districts and consortia to fund pilot programs. Grant funds were eliminated in 2011, which forced programs to make cuts and rely on district funding if it was available.

This research examines the needs of new teachers and compares them to the supports that funded, never-funded, and previously-funded induction programs have been able to provide. Data include:

- focus group interviews with and surveys of beginning teachers following their first year in the classroom
- a 2010/2011 survey of state-funded induction programs
- a 2011 survey of all never-funded districts in Illinois
- a 2012 survey of the previously-funded programs after they lost state support.

Beginning teachers cited the importance of their mentors in their first year experiences. The data collected on beginning teachers suggest two main conclusions. 1) The more frequent a mentor/mentee's interaction, the more valuable it was regarded. 2) The mentee/mentor interactions perceived as more valuable were those that involved meaningful interactions, such as planning lessons together and analyzing samples of students' work and assessment data to make decisions about instruction. New teachers also reported benefiting from observing experienced teachers.

The induction program survey data highlight the importance of funding on the quality of induction programs and on the services they are able to offer. When state funding ended in 2011, the funded programs had to make cuts and rely on district funding. Cuts included mentor/first-year teacher compensation, induction components/supports, and release time available to mentors and mentees. These cuts are particularly relevant in light of what we learned from the data on beginning teachers, as some of the cuts (e.g., release time available for classroom observations) affected items the beginning teachers found most valuable. However, the previously-funded programs were able to offer more in-depth services than were the never-funded districts—thus leaving many new teachers without adequate support.

Our analysis of both the survey data and the focus group interviews provides a clear picture of the importance of adequate funding and meaningful staff interactions when establishing and maintaining high quality mentoring and induction programs.

# **Apples to Apples: An Alternative Look at Chronic Gaps in Achievement and Instructional Effectiveness in Chicago and All Illinois excluding Chicago**

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Use of single demographic markers and arbitrary cut scores to report achievement distorts results, oversimplifies findings, and limits how data can be used to inform policy and practice at all levels. This study highlights the importance of using multiple demographic markers and normalized measures of central tendency to sort, report and analyze standardized achievement results.

Grading and sorting choices that have limited the value of disaggregated ISAT and PSAE reportage in the State of Illinois include:

- Use of single reporting categories for race, gender and lunch status rather than combined categories that are more sensitive to the combined influence of these factors
- Substitution of arbitrary and unaligned cut scores for more statistically-defensible measures central tendency
- Use of arbitrary and unaligned cut scores to represent full scoring distributions in lieu of statistically-defensible units such as quartiles, stanines and standard deviations
- Scaling changes in 2006 that produced gross discrepancies in equated scale values and made it impossible for schools, districts and policy makers to conduct meaningful comparisons of pre-2006 and post 2006 score reports.

## **Research Design and Data Analysis Methods**

This study addresses the limitations outlined above by recalculating disaggregated ISAT and PSAE results using the following procedures:

- From 2001 through 2012, scoring distributions for each subject tested at grades 3, 5, 8 and 11 were disaggregated for White, African American and Latino test-takers into 12 sub-groups using race, gender and family-income markers simultaneously, e.g. White females eligible for free-reduced lunch
- Each sub-group was then further sub-divided into distributions for the City of Chicago and All Illinois excluding Chicago
- From 2001 through 2012, each of the resulting 24 distributions was normalized in order to assign percentile values and stanine ranges to all scale scores in each distribution
- T-tests and equipercentile equating were used to compare year-to-year changes in scale score distributions across the 12-year achievement sequence for each sub-group.

## **Summary of Findings**

- At grades 8 and 11 across all years, virtually all sub-groups from the City of Chicago achieved at similar or higher levels than comparable sub-groups from All Illinois excluding Chicago
- From 2001 through 2005 at grades 3 and 5, virtually all sub-groups from the City of Chicago achieved at lower levels than comparable sub-groups from All Illinois, but grew at faster rates and ultimately achieved at higher rates than comparable sub-groups from outside of Chicago between 2006 and 2012.

## **An Inventory of Definitions and Measures of College Quality**

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Increases in college enrollments and demands for a college-educated workforce have helped catalyze interest in understanding what constitutes “college quality.” Currently, Illinois is implementing a performance funding system that allocates a portion of state higher education funding based on institutional performance, and most states require colleges to publicly report their performance on a set of indicators. Responding to a request from members of the College and Career Success Research Alliance, a group of education stakeholders convened by the Regional Educational Laboratory (REL) Midwest, this study identified, categorized, and described definitions and measures of college quality used in research and policy documents. An initial search yielded 955 such documents; 72 remained after screening. These documents discussed eight different criteria for assessing college quality and 19 types of quality measures related to institutional inputs, processes, and outputs. This research can help policymakers understand what measures have been used to assess the performance of postsecondary institutions. In addition, it raises several issues to take into account when considering measures of college quality, including the intended audience, variations in institutional mission, and the known limitations of measures.

## **The Community College Penalty and Bachelor's Degree Completion: Fact or Fiction?**

Eric Lichtenberger, PhD, Associate Director for Research, Illinois Education Research Council  
and Assistant Research Professor, Southern Illinois University Edwardsville

Cecile Dietrich, PhD, Research Consultant

Using a longitudinal dataset for the Illinois High School Class of 2003, we sought to determine whether students who take the community college to four-year college pathway have different bachelor's degree completion rates than rising four-year college juniors who directly enrolled at four-year institutions out of high school. To create a better balance between the community college transfer students and direct four-year entrants we used propensity score matching and later made a post-treatment adjustment to compensate for college-level effects. We found community college transfer students were just as likely to complete a bachelor's degree as a similar group of rising four-year college juniors. We conclude that the community college to four-year pathway is a viable option for many students in terms of bachelor's degree completion. As a result, policymakers should continue to: 1) develop baseline information about institutional transfer performance as the state's longitudinal data system is fully implemented; 2) set goals and measures for performance related to community college to four-year transfer; and 3) develop ways to use financial aid as a tool to promote community college to four-year transfer.



## **The Impact of Dual Credit on College Enrollment and College Completion for Underrepresented Students in Illinois**

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High school student enrollment in college courses for dual credit is a growing phenomenon in the United States where policies have promoted the availability of dual credit programs over the past two decades. As a state, Illinois has invested public funds in dual credit for over a decade and enrollment has grown from 11,809 students in 2001 to 75,989 students in 2008 (Andrews & Barnett, 2002; Illinois Community College Board, 2010). Despite this growth, little is known about dual credit participants in Illinois, and little rigorous empirical evidence exists about the relative impact of dual credit participation on college access and college completion, particularly for underrepresented student populations.

Nationally, there is accumulating evidence that dual credit is has positive impacts on students' post-college outcomes (An, 2009; Kim & Bragg, 2008; Speroni, 2011; Struhl & Vargas, 2012), although few studies account for students' selection into dual credit. The purpose of this study is to examine the impact of dual credit policy in Illinois by answering critical questions about the average outcomes of community college dual credit students, and the average outcomes of sub-samples of students of color and low-income students.

The study is guided by Perna and Thomas' (2008) Conceptual Model of Student Success and Rawls' (1999) philosophy of justice as fairness. I draw on the four constructs of Perna and Thomas' (2008) model—internal context; family context; school context; and social, economic, and policy context—to model the dual credit selection process and measure the average impact of community college dual credit participation on college enrollment and college completion using propensity score matching (PSM) (Rosenbaum & Rubin, 1983; 1984). In addition, I conduct additional analyses for sub-samples of low-income and students of color to determine the extent to which inequitable outcomes are observed for low-income students and students of color relative to the average impact.

To conduct the analyses, I drew from an IERC longitudinal dataset of the Illinois high school class of 2003 and used a purposeful sample of students in twelve community college districts that were high dual credit providers (relative to dual enrollment); the final sample included 5,315 dual credit students and a comparison group of 36,422 non-dual credit students. My analytical approach was descriptive and quasi-experimental. I used nearest-neighbor PSM with a caliper of .01 and matched students within high schools to estimate the Average Treatment Effect on the Treated (ATT).

Descriptive and PSM results suggest that dual credit students of color and low-income students both enroll in college and complete college at rates higher than their non-dual credit counterparts. PSM results show that dual credit students of color were 26% more likely to enroll in college and 14% more likely to complete college than non-dual credit students of color, and low-income dual credit students were 30% more likely to enroll in college and 16% more likely to complete college than non-dual credit students. Although these results are significant, dual credit students of color and low-income students of color were still less likely to enroll in college and complete college relative to the sample average, suggesting inequitable policy effects.

## **Comparing the Bachelors Completion Rates of Native Students and Transfer Students using Multiple Informational Sources**

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Liz Sanders, Assistant Vice President, Institutional Research & Market Analytics  
Gerry McLaughlin, Associate Vice President, Division Planning and Management  
Enrollment Management and Marketing  
DePaul University

This presentation will highlight key findings of a collaborative project between the IERC and two four-year institutions, one private and one public. The study evaluates the use of data from multiple sources—National Student Clearinghouse, ACT, and the institutions—as well as the potential limitations of the data, such as definitional issues and matching across systems. Differences in graduation rates for native students will be presented by key demographics and college readiness levels and it will be determined if and how those differences hold up for transfer students with varying amounts of transferred credit.

## **Migration of Illinois College-bound Students**

James Sconing, Assistant Vice President, Applied Research  
ACT, Inc.

There is an increasing tendency on the part of states to look at economic development as a race, with the other states being the competitors. In the quest for a thriving economy with good jobs, states look for advantages that may induce employers to locate in their states. One of the attributes that employers look for is a skilled and diverse workforce. As such, many states have made it a priority to develop and maintain such a workforce. The maintaining part of that requires that a state keep its most able workers in the state during the transition periods of their lives (going to college, getting a job, etc.). This study looks at one such transition period, the transition from K-12 to college. Many states make it a priority to try and keep their best and brightest in the state when they attend college, typically through some scholarship program. The question we want to address here is how is Illinois doing with regard to retaining its best students? Subpopulations of particular emphasis will include African American students, African American males, and high scoring (ACT Composite  $\geq 25$ ) African American males.

Looking at the high school class that graduated in 2012, we consider the enrollment in the fall of 2012. Data from the National Student Clearinghouse was used, and the state for college enrolled in at that time was compared to resident state at the time of high school graduation. Based on this data, Illinois ranks first in terms of the number of students leaving the state to go to college, the number of African American students who leave the state, the number of African American males who leave the state, and the number of high scoring African American males who leave the state. Now some of this is easily explained. Illinois is a very large state, with a diverse population, and almost every student has taken the ACT. However, when we look at net change in these populations, Illinois is still ranked first as the largest “exporter” in each of these four categories.

There are other factors that are known to affect the transient nature of the college going population as measured in this fashion, including which college admissions test is used most frequently, the population density, where the population is located within the state, education levels of the population, and the number of high scoring students. Here we investigate what might be related to the net loss of students in Illinois. We will consider what sort of students are leaving, where they are typically from, and where they are going.

One particular area of interest will be Chicago and the suburban area. Densely populated areas with diverse populations are attractive to college recruiters. As part of the investigation, we will use the ACT Educational Opportunity System (EOS) database. The EOS system allows colleges to purchase the names of ACT test takers who might be good fits for their institution. Looking at the complete EOS data for the class of 2012, we can see whose name was purchased most often, and compare Chicago to other large metropolitan areas that might attract similar interest from college recruiters. This may help shed some light on the reasons for the outward migration of Illinois students.

## **A Strategic Look at Enrolling Successful Transfer Students**

Connie Castellucci, Research Associate for the Institutional Research and Market Analytics

Lois Bishop, Director, Community College Partnerships

Liz Sanders, Assistant Vice President, Institutional Research & Market Analytics

Gerry McLaughlin, Associate Vice President, Division Planning and Management

Enrollment Management and Marketing

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As institutions move to support Illinois' Goal 3 of the Public Agenda: Increase the number of high-quality postsecondary credentials to meet the demands of the economy and an increasingly global society; it is important to look at the successful movement of students from one level of postsecondary education to the next level. As this is done, the receiving institution needs to take a strategic look at the institutions from which students are transferring. This strategic view is important for numerous reasons. It will test the various traditional wisdoms with data. It will help both institutions put the flow of students into perspective as to the magnitude and characteristics of the transfers. It will help institutions look at opportunities by providing internal benchmarks.

We selected the GE-McKinsey nine-cell matrix to look at our success with transfer students from Illinois institutions. Developed in the early 1970s, this approach offers a systematic way to evaluate a portfolio of business units which in this analysis are transfer institutions.<sup>1</sup> In the original form of the matrix these two dimensions are Market Potential and Competitive Capability. In adapting the methodology, each institution is evaluated based on the two dimensions of the institution's "Focus on Providing Transfer Students" and our "Success in Enrolling Successful Transfers" from the institution.

For the focus of the institution on transfers, variables such as size, percentage of students who transfer, degrees and certificates per student, and percent graduating were used. Higher scorers were considered to be a higher focus on transfers. Measures of our receiving successful transfers included the number who enrolled at our university, the yield of students accepted, and success in the first year in terms of credit hours passed and grades.

All of the measures were scaled by normalizing them to the proportion they represented of the best number in the group. This methodology is currently in use by US News and is a convenient alternative to standardizing the scores base on their mean and standard deviation. The items for a dimension were then averaged giving quasi-continuous scales for the rows and for the columns of the matrix. The scores for each dimension were divided into thirds based on the GE-McKinsey methodology. Institutions from which students have transfer were then placed on this nine-cell grid.

Those institutions in the cells for strong focus and strong success were identified as being very important as were the institutions in the adjacent cells. Specific consideration is made for those in the cell of well above average transfer focus but only average success by our university. Who are they and what can we do to be more successful in building bridges for successful transfers?

In the diagonal of the matrix, there is the need to maintain the effort but an understanding that incremental increases will most likely not produce major results. This is because either the focus on transfers or our success is essentially at what is expected for the group. In the lower corner of the matrix and the adjacent cells, the GE-McKinsey matrix suggests that current status and programs be continued, however is unlikely anything short of a major initiative and/or dramatic shifts in the situation will yield major flows of successful students from these institutions.

Using this tool we have had strategic discussions with managers and key administrators about our flow of students from specific institutions. Many of the results have been as one might expect based on demographics and geography but there have been some "ah-ha" moments and the results have been a value added for our ability to support the successful transition of students to our university.

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<sup>1</sup> <http://www.quickmba.com/strategy/matrix/ge-mckinsey/>

# Methods for Stimulating Intellectual Curiosity and Affecting Deep Learning in the Classroom and the Impact of Modern Technology in Education

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## Abstract

In this presentation we discuss the impact of innovative teaching strategies along with other conventional approaches on student learning in developmental mathematics classes in college. We will also discuss the impact of modern technology in mathematics education. Our three-year long research study measured student outcomes on a national standardized test (COMPASS) as well as on departmentally-constructed internal examinations. The study also investigated the impact of computer learning technologies on traditional and non-traditional teaching approaches and measured their effects on student learning outcomes.

The study design used the experimental/control approach and compared student learning outcomes under innovative and traditional teaching approaches as well as the impact of modern computer technology on learning outcomes under different teaching approaches. The study showed that the use of technology alone has insignificant effect on learning, whereas incorporating modern technology into a dynamic teaching methodology (Keystone Model) can produce significant positive impact on student learning.

A summary of our research findings showed that, students' average test scores in elementary algebra, on COMPASS, improved significantly (more than **3-sigma standard error**) from conventional to innovative teaching approaches. However application of technology on traditional teaching, did not improve student learning outcomes. Similar improvements in test results in elementary algebra were also shown under departmentally-constructed common midterm and final exams.

In intermediate algebra classes also, student learning outcomes under innovative teaching approaches improved significantly (more than **5-standard deviations**) on departmentally-constructed final exams, compared to those taught under traditional methods.

In conclusion, use of computer technology in developmental mathematics classes, without incorporating appropriate innovation in teaching methodology, did not improve student learning outcomes.

In light of the present high failure rates of developmental mathematics courses across colleges and universities in Illinois, and indeed across the US, and inadequacy of the existing teaching methods to address the issue of student success and retention in these programs, we feel that our method of integrating innovative teaching strategies with appropriate computer technology merits further study and can be viewed as a best practice model in mathematics education.

## **The Virtual Laboratory School at Northern Illinois University: A Distributed P20 Pipeline**

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Sharon Smaldino, PhD, Morgridge Endowed Chair for Teacher Education  
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In the tradition of university laboratory schools, the mission of The Virtual Laboratory School at Northern Illinois University (The VLS @ NIU) is two-fold: to provide academic and enrichment experiences to school-age high-needs learners and to provide a laboratory environment for NIU faculty and teacher candidates to explore innovative teaching, learning, and assessment in an authentic setting. Unique to The VLS @ NIU are activities incorporating the state's social and emotional learning standards to target marginalized, high-needs learners and capitalizing on the regional broadband network to do this in a virtual learning environment. Unlike the virtual school models nationally, The VLS @ NIU is the first of its kind; there is no other virtual laboratory school in the nation. Thus, The VLS @ NIU demonstrates how the university is a leader in preparing future educators and working with the children who have the greatest need for access to our rich university community resources. The VLS @ NIU provides the infrastructure for endless opportunities for the university to have an educational impact on the region and beyond.

The VLS @ NIU has established the following goals:

- Establish The Virtual Laboratory School at Northern Illinois University to provide educational opportunities for high-need learners and their families, to prepare pre-service teacher candidates, and to create a “real world” laboratory for NIU faculty and students to explore innovative, virtual pedagogy.
- Extend existing university resources for regional educational impact through The VLS @ NIU
- Provide virtual pedagogy training for pre-service teacher candidates and professional development of in-service teachers through The VLS @ NIU.
- Establish a pedagogical framework for the design and development of instruction for K-12, pre-service, and in-service professional development.

The pedagogical framework guiding curriculum development integrates learning theory, learning standards, and best practices in online interaction culminating in a P20 Learning Community. At the foundation is acknowledgement that successful learners integrate their creative, practical, and analytical abilities within a sociocultural context (Sternberg and Grigorenko, 2007). Our pedagogical model stems from Successful Intelligence as a platform to support the learning conditions including Transformational Learning, Responsive Assessment, and a Holistic Environment. These learning conditions are designed to facilitate P-12 learners, pre-service teachers, and the professional development of in-service teachers in achieving the appropriate standards (21st Century Skills, National Educational Technology Standards, Interstate Teacher Assessment and Support Curriculum, Social-Emotional Standards, and Common Core State Standards).

The focus of the session is to share how the concept is evolving into a “real” school within the boundaries of a university setting through proof of concept initiatives like eTutoring, Online Book Clubs, a Virtual Studio, and Parent Education in the 21st Century Classroom. This session will also engage the audience in discussion related to challenges of sustainability and future promise of this initiative.

## **Developing a Statewide System of Local Assessment Support**

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Diana Zaleski, PhD, Principal Consultant, Statistician, Division of Student Assessment  
Angela Chamness, Projects Administrator, Teacher and Leader Effectiveness  
Illinois State Board of Education

The Illinois State Board of Education (ISBE) is developing a system of Local Assessment Support (LAS). The LAS will contain valid and reliable noncommercial local assessment resources supporting standards aligned instruction and the measurement of student growth for the purpose of teacher and principal performance evaluations. The development of LAS is an exciting opportunity to engage the Illinois Education Research Council (IERC) community in a dialogue to help strengthen teacher and administrator education in the area of assessment literacy. The objective of this presentation is to engage educational practitioners, policy makers and researchers in a discussion about the future of educational assessment in the state of Illinois.

## **Education Lessons Learned with Longitudinal Data Systems and Quasi-Experimental Design**

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States and districts with detailed longitudinal data systems (LDSs) provide researchers with an opportunity to study the effects of implemented educational policies and programs. Presently, Illinois is preparing to establish the Illinois Longitudinal Data System (ILDS), a data system that will longitudinally track students, both within and across educational agencies, making it possible to track a single student, or a cohort of students, from early childhood through K-12, into post-secondary education, and eventually into the workforce. To understand the potential of the ILDS, we examined over 50 studies from top-tier research journals that used longitudinal data, and identified six areas of study important to both policy makers and educational researchers: education finance, incentivist education reforms (i.e. charter schools, private school vouchers, open enrollment, etc.), teacher effectiveness, teacher mobility, special populations (English language learners (ELLs), students with special needs, students from low-income families), and the P20 Pipeline and transitions. For each area of study, we examined how these studies used longitudinal data combined with various quasi-experimental methods to provide insight into the effects of state policies and programs.



## **REL Midwest EdMaps: Assessing Education Data Geospatially**

Matt Burke, Researcher  
American Institutes for Research

The use of geographic information system (GIS) technology is becoming increasingly important in the field of educational research and countless other research fields across this country. GIS systems enable us to represent student, teacher, parent, school, district, county, state, and regional information geospatially, thus allowing for a greater number of comparisons to take place in a manner that is easier to understand than standard tabular or graphical depictions.

In 2011, the Regional Educational Laboratory (REL) Midwest launched the Midwest Education Atlas. Using publicly available data from a variety of sources, the REL Midwest team created a set of maps that displayed data on high school dropout rates across several related district-level variables. These dropout rate maps grew out of REL Midwest's support of statewide and citywide summits on high school dropout prevention and have helped frame conversations on dropout prevention in communities in Illinois and across the Midwest. As time progressed, however, Midwest education stakeholders expressed an interest in a more interactive tool that could be used to explore a wide range of education data, as well as to analyze changes in these data over time.

During the past year, REL Midwest has been working with Blue Raster (a company specializing in GIS data and Web mapping) to develop the EdMaps Web-mapping application: an online tool containing state-specific publicly available data that easily allows users to examine state, local education agency, county, district, or school-level data. Utilizing data sets from the U.S. Census Bureau, NCES Common Core of Data, and data provided from each state department of education, REL Midwest's mapping application gives users the ability to generate custom maps, tables, and reports for only those geographic areas and variables that apply to their specific inquiries. This functionality, coupled with the ability to view changes over time in any number of variables (e.g., test performance, minority status, total enrollment) provides a dynamic resource to regional stakeholders.

This presentation will provide an opportunity for Illinois education practitioners, policymakers, and researchers to learn about the functionality of the REL Midwest EdMaps application and how it can be used to answer questions and explore relationships between school performance and a large number of demographic variables.

Notes