PLenary 4

Breaking down the silos

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The **RAND Corporation** is a nonprofit institution that helps improve policy and decisionmaking through research and analysis.
Today’s talk

1. Improvements in use of traditional education data
2. Joining education data with other data sources
3. ‘New’ types of data and potential for education
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2. Joining education data with other data sources
3. ‘New’ types of data and potential for education
Three types of traditional education data

- **Students**
  - Demographics
  - Test scores
  - Grades
  - Assigned teachers

- **Teachers**
  - Demographics
  - Assigned schools
  - Universities and degrees
  - Evaluation scores

- **Schools**
  - Location
  - Number of students
  - Number of teachers
  - Student outcomes
Comprehensive data systems in education are relatively new.

10 to 15 years ago: data had to be gathered from individual schools – and the data was dissimilar.

2005: 45 governors agreed to implement a common definition for calculating graduation rates.
Longitudinal data systems track students and teachers over time and across school moves within a system.

- **47** states have or are developing longitudinal data systems.
- **37** states are able to link K-12 data to either preschool or higher education data.
- **16** states have systems that track students from preschool to the workforce.

Longitudinal education data systems developed soon after...
Why are these data systems so important to breaking the education data silo?

Well-defined measures enable large comparisons

- Across states
- Within a state (New York)
- Across an institution

Rigorous policy and program evaluations are more possible

- More meaningful inference
- In the best case, causal inference from well-crafted quasi-experimental design
The case of New York City and student grade promotion

2003: NYC decided to promote students based on achievement test scores taken between 3rd and 4th grade.
The case of New York City and student grade promotion

At the end of summer school, students were tested again.

- Scores above threshold: Move on to next grade
- Scores below threshold: Repeat previous grade

Research Question: Does grade retention have later, negative impacts on retained students?
The case of New York City and student grade promotion

We were able to identify (and match) students who were retained because of scores just below the threshold with students who were passed with scores just above the threshold.

No evidence of systematic impact on:
- suspension
- severity of behavioral infractions
- attendance patterns

We were also able to understand impact of moderating variables (e.g., race, gender) and mediating variables (e.g., future placement into special education) on student promotion.

Continuation and impact of student promotion study

We continue to follow student cohorts to understand if retention impacts high school course accumulation and graduation.

Other U.S. cities are abandoning social promotion policies.
Another education data improvement: better visualizations

The Bill and Melinda Gates Foundation is working with 22 states to help them collect and use data to make better school reform decisions.

Our researchers are collecting the data from teachers and attaching it to data available in their SLDS.
Users can look at data to understand what is going on at the state level.
Users can also compare districts across a state
District-specific views are available for those who need detail about one area.
Users can look at their state data as compared to other states and national averages. Results can also be filtered by demographics.

Comparison of New York and California teachers’ responses to survey questions, filtered by the % students who receive free or reduced price lunches.
Simplified data visualizations can explain and clarify findings.

Comparison of instructional hours lost in summer learning programs shows how important instruction is to student learning outcomes.
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Matching education data with other data sets expands research possibilities

Possible data sets:
- Health data
- Economic data
- Demographic data
- Other social data
The Baltimore case: How do new buildings impact student, staff, school and community outcomes

2011 Baltimore School Building Assessment

163 campuses and 39 modular buildings in area

54 years average age of school buildings

10-Year School Facilities Improvement Plan

Renovate or replace 136 school buildings

$1 billion Approximate cost of replacing or renovating aging school buildings
We are working with multiple data silos

Education longitudinal data + Neighborhood data + Students and teacher health data + Well-being (survey data) + School climate (survey data) =
This data enables us to understand connections between multiple relationships

- Student health, well-being and student education outcomes
- Teacher health, well-being and student education outcomes
- School building improvement and neighborhood crime
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New data = new technologies

Applications

Open education resources

Real-time information and predictive analytics
A unique app enabled teachers to save and share materials.
Researchers can use the app to monitor quality of instruction.
A wealth of information is helping schools and communities improve student outcomes.

- Is student work completed?
- How well are teachers doing?
- Are students making errors?
- Who is at risk?
There are risks to maintaining this data

Who is accessing it?

What are they doing with it?

Uncertain: ethics of use and researcher responses
THANK YOU