

From High School to the Workforce: Current Challenges, Opportunities, and Initiatives to Close Education Gaps in Missouri

Takako Nomi, Ph.D and Michael Podgursky, Ph.D

February 25, 2021

Acknowledgment: This research has been supported by St. Louis University's
Research Growth Fund



Today's talk: Overview

Highlighting our ongoing work in education research and new initiatives at SLU:

- 1) To understand the current challenge and opportunities
- 2) To address workforce development needs in our region and across the state
- 3) To strengthen collaborations among stakeholders to achieve 41BD

Today's talk: Two Parts

Today's talk: Two Parts

Part 2 : Current opportunities and initiatives

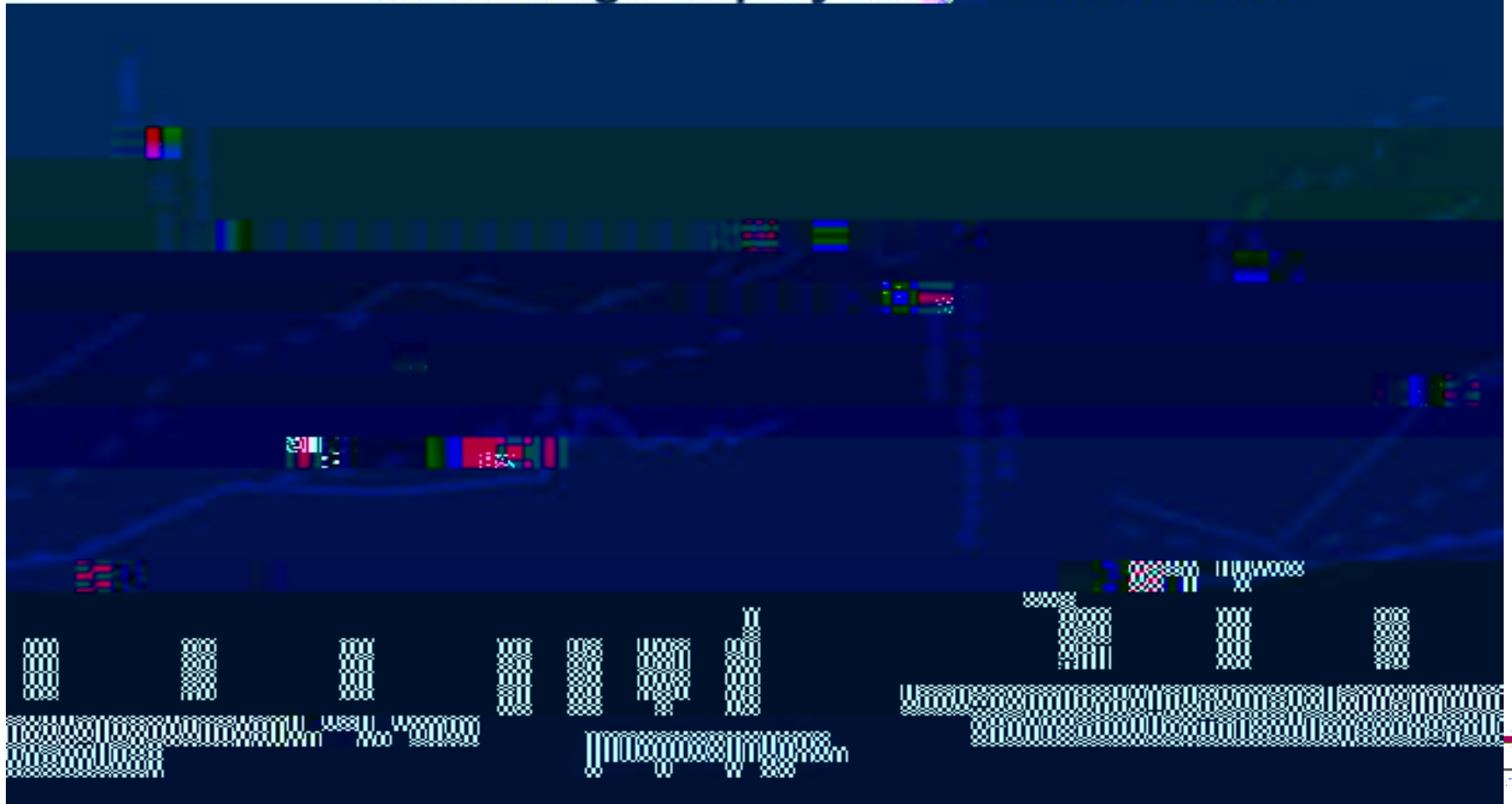
- Relocation of National Geospatial-Intelligence Agency (NGA) to North St. Louis in 2025
- SLU's role in supporting K -12 teachers, students, and workforce development
- Current research and capacity building through research
 - Addressing the questions related to PLTW initiated by KC STEM alliance and developing research from there
 - Working with the key stakeholders to help develop research agendas, initiate longitudinal data construction(linkage), and address questions that are important to our state using the data.

Part 1: Understanding the current challenges

Growing educational attainment disparities in the US (4+ Years of Education)

National trend by Brookings Institute (2017)

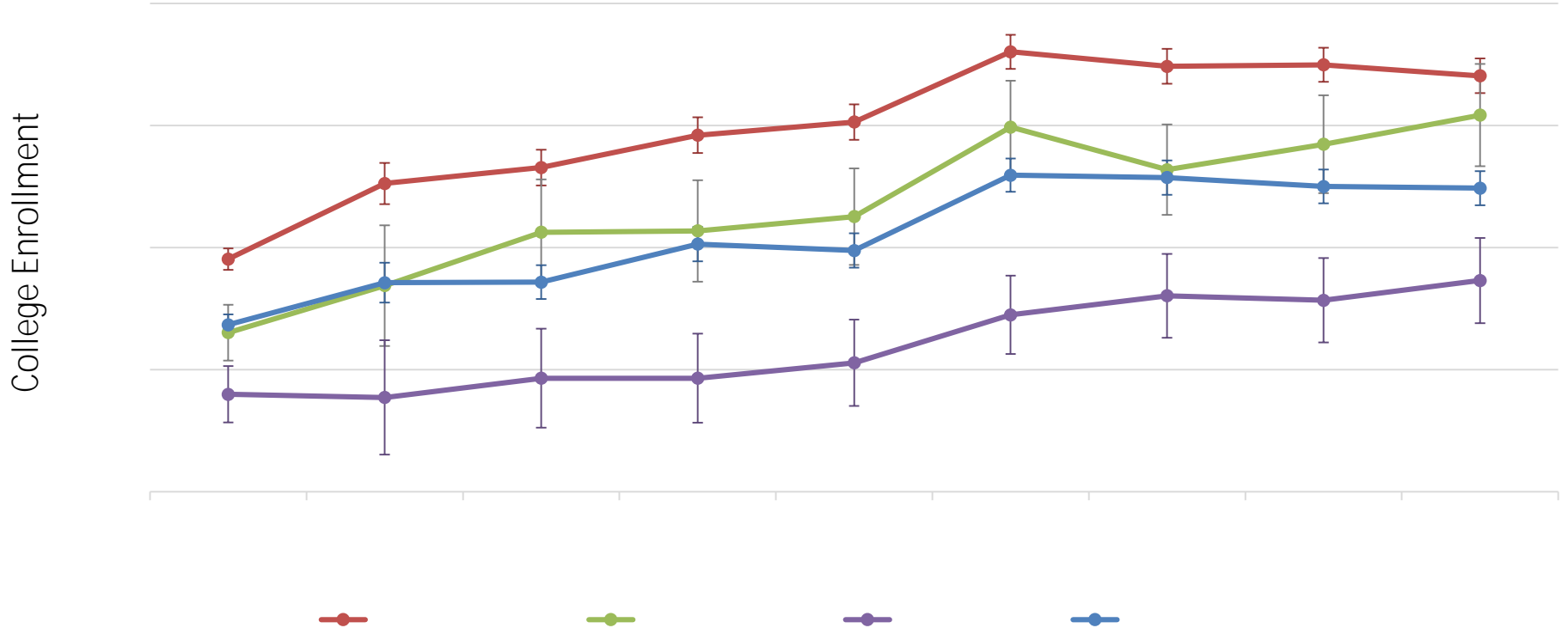
The College Gap by Race and Gender



Do we see a similar pattern in MO?

- The first study looks at a difference in both college enrollment and attainment between white and black, male and female ACS respondents since 2000 (MO population trends)
 - Do we observe growing gaps in both enrollment and attainment? (attainment gaps may be growing because enrollment gaps are also growing(?))
 - We can't make a causal claim here, but is the observed pattern consistent with the theory?
- College enrollment: Currently enrolled in college for age 18 to 24
- For degree attainment: Holding a 4-year degree for age 24 to 36
- Metro vs Non-Metro difference

Trend in College Enrollment by Race-Gender in MO, age 18-24



Overall

- Large gaps overall--females leading males in both races
- After 2010, the trend is flat for white males and females, but the upward trend continues for black students
- The gaps are not widening over the last 10 years

Metro vs. Non-Metro Difference in College Enrollment

Metro Area

- Race-gender gaps are stable since 2005
- Black females are similar to white males

Non-Metro Area

- Black females have the highest enrollment rate of all groups
- Black males have made larger improvement (now similar to white males)
- White Non-Metro students of both genders lag considerably behind their Metro counterparts. Few Metro vs non-Metro gaps for black students

Degree Attainment

If all students are similarly successful in completing a degree once they enter college, then the degree attainment trend should follow the enrollment trend with a time lag (appx 6 yrs).

However, evidence shows

Overall



Metro vs. non-Metro Difference in Bachelor's Degree Attainment

Metro Area

- Both female groups improved more than their male counterparts
greater gender gaps within the same race
- Black males seem to have made the smallest improvement

Non-Metro Area

- For all groups, non-metro students have lower 4-yr degree attainment than metro students

Summary on Historical Trends

Our data shows:

- All groups have upward enrollment trends
- However, black males show little improvement in attainment
- Black females have similar, or higher enrollment than white males, but much lower 4-yr degree attainment

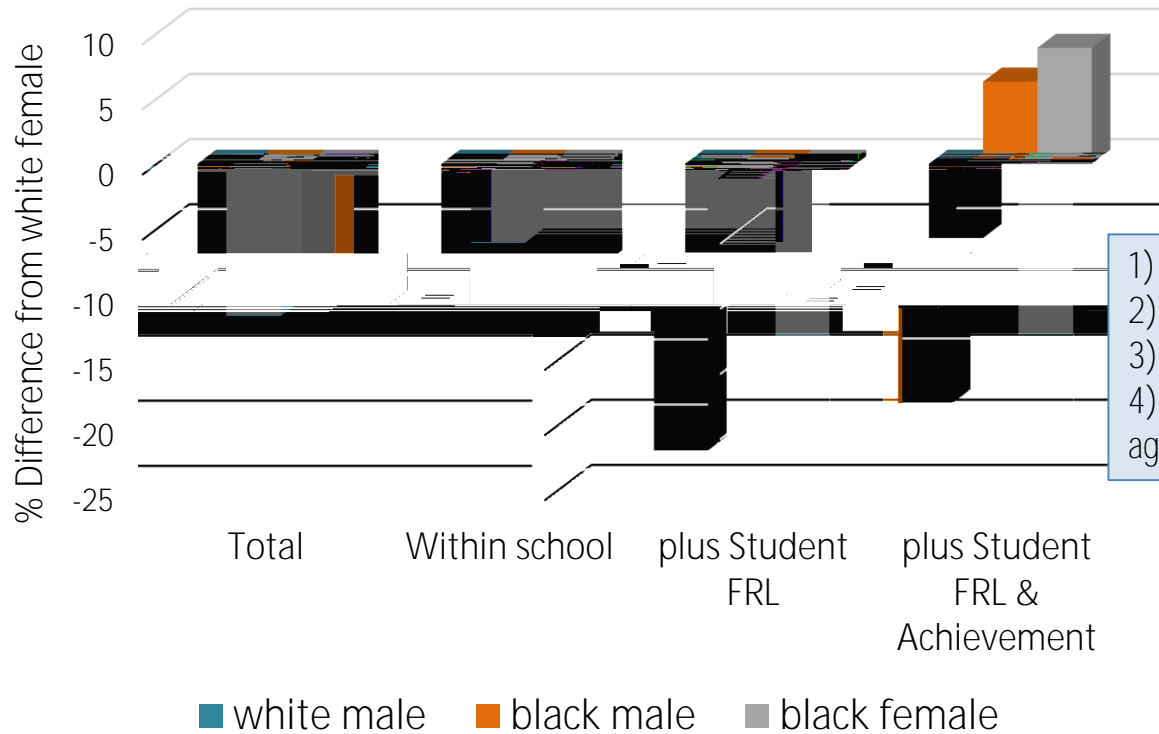
Of those enrolled in college, 4-year degree non-completion rates may be rising for minority students (male students in particular)

Following one cohort of first-time ninth-grade students in MO public high schools (AY2009-10)

Outcomes:

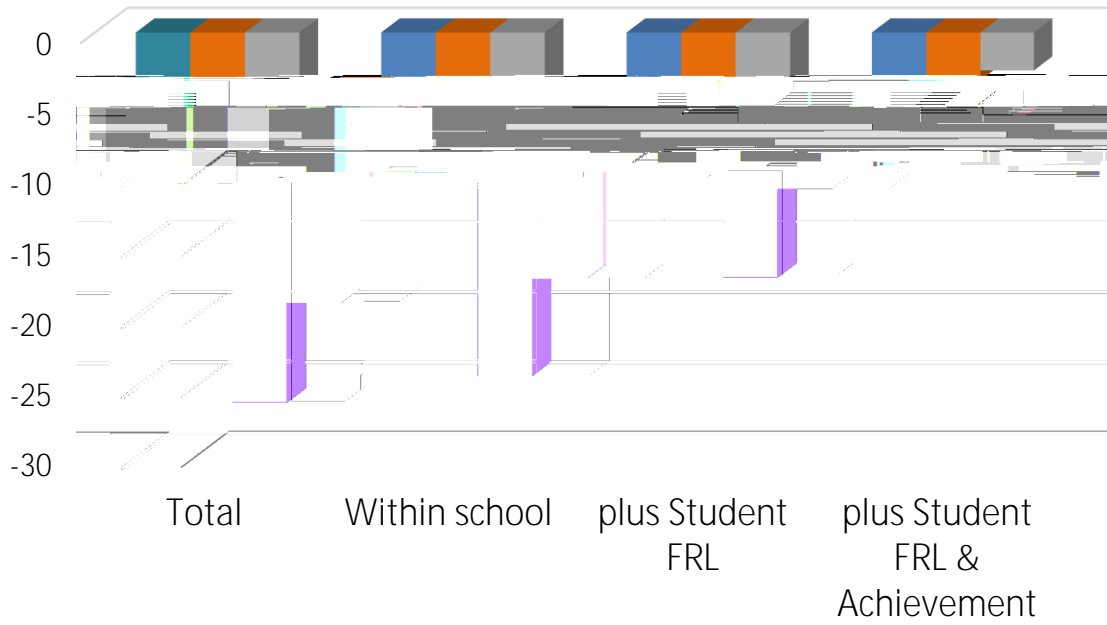
College enrollment, any degree, and bachelor's degree attainment

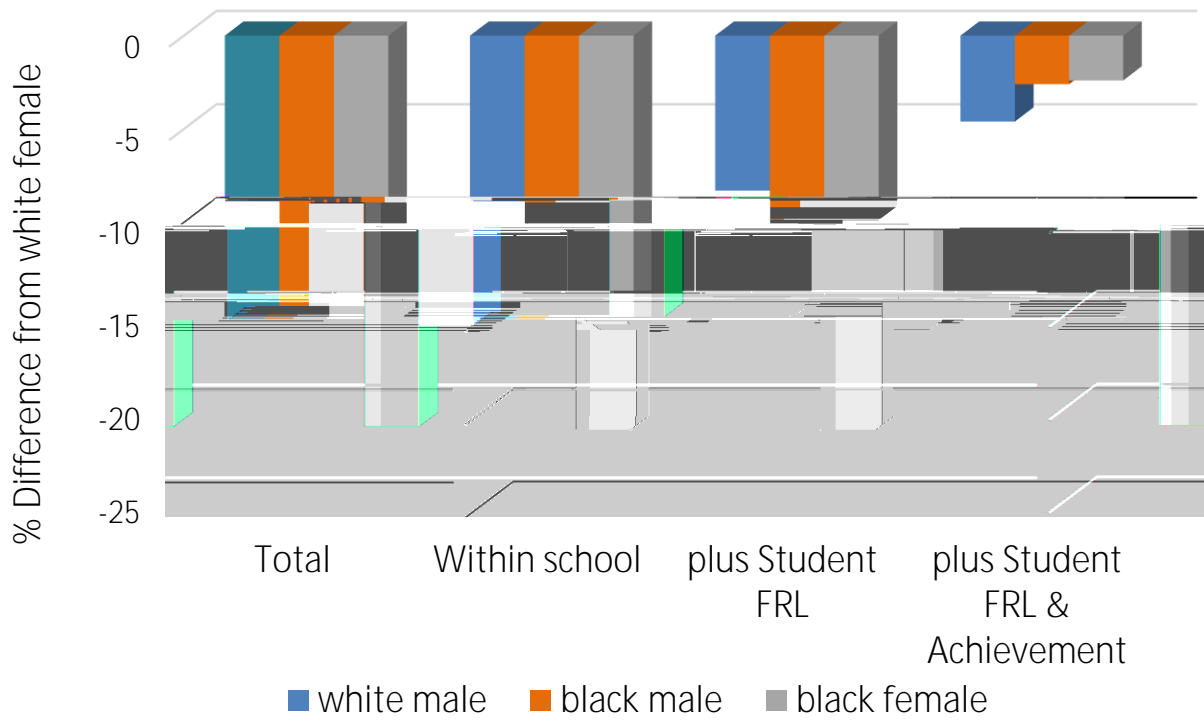
To what extent high school and student characteristics (FRL and academic backgrounds, including MAP and 9th



1) Total: Total average gap
 2) Within School: Within HS average gap
 3) + Student FRL: Within HS + age and FRL
 4) + Student FRL + Achievement: Within HS, age and FRL + Math MAP 8th and 9th-GPA

- Large total gaps between white females and the rest of the groups (and males are behind females in both races)
- School factors and student FRL status explain more than 60% of the gap





- Patterns are similar to any degree attainment, but high school factors do not explain any of the gaps in 4-year degree attainment.
- Pre-

Summary

- Minority students are more likely to attend college than white students with the same FRL status, test scores and GPA, but this

Part 2: Current opportunities and initiatives

Talent Development Needs in STL and MO

The opening of NGA-West in 2025 is expected to create a geospatial hub in St. Louis

- New job growth
 - Direct employment of 3000+ and much more in private sectors
- Need for talent development

Current Development: High School

- “Geospatial pathway” will be added to the MO Career Pathways Program by DESE
 - Faculty in the Geospatial Institute (GeoSLU) are providing technical assistance
- Instructional modules being developed by GeoSLU faculty
 - Can be used for standalone courses or integrated in the core courses
 - Implemented in local high schools, (e.g., Collegiate School of Medicine and Bioscience in SLPS, and more schools in the future)
- Needs for teacher training
 - Introducing the subject and how special thinking can promote learning in the core subject with application examples
 - Help teachers develop instructional material and lesson plans
 - Teaching teachers application tools

Plans to offer PD as DESE introduces the Geospatial Pathway

Current Development: HS to College

- Apprenticeship program by Gateway Global (non-profit) for HS and college-age students (earn while learning)
 - Possibility to add peer mentoring by SLU students
- SLU 1818 to offer low-cost dual-credit courses
 -

Other research agenda and collaborations

Working with MO Education Agencies (DESE and DHEWD)

- Developing the trusted relationship is the most critical component in data sharing
- Addressing the questions that they care, which include:
 - Simple descriptive questions, such as how our students are doing after graduating from HS, the current levels of attainment disparities, what explains the observed disparities, how students cumulate credits in college, and to what extent students lose credits when they transfer to another school.

These types of studies often generate conversations toward strategies for solution (How do we improve?) as well as the next research questions

Working with MO Education Agencies (DESE and DHEWD)

- Addressing the questions that they care (continued):
 - Policy questions, such as how to measure teacher contribution to learning for state accountability system, whether instituting the state-wide common core curriculum(Core42) mitigates credit loss for transfer students, and whether adding an algebra requirement for the Missouri A plus program improves student success.
 - Questions about certain programs, such as how PLTW (STEM

New collaboration and future opportunities

- Project Lead the Way (PLTW)— one of the D E SE 's Career Pathways Program
 -

Summary

- SLU can play a vital role in creating educational opportunities for local students and statewide to support geospatial workforce development (all stakeholders acknowledge that this is our priority in the region)
- SLU can play an important role in supporting/conducting data-driven educational and social science research to support critical issues facing our state
- The relationships that we have developed over many years are critical to this (this includes our teacher ed and ed leadership programs)
- Building a relationship/collaboration among SLU, MU and UMKC adds to the trust we are building around research as well as research capacity to address key issues to our state

Questions and Discussions?