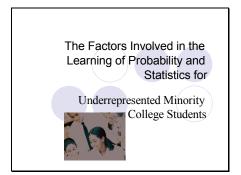
# Factors Involved in Failure of Underrepresented Students in Statistics

Mario Davidson, The Ohio State University



# Reason for Research

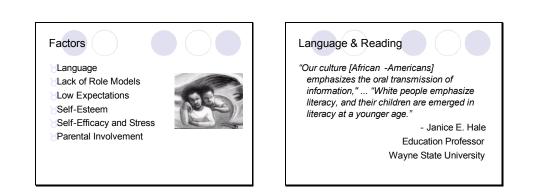
The Demand for Probability and Statistics
The Curriculum and Evaluation Standards for
School Mathematics Recommends Increase
73% of Business Schools Require Two
Semesters (The American Assembly of Collegiate
Schools of Business)
People of Color Underrepresented in
Mathematical Intensive Careers
Contributing to Society
Understanding Published Research

## The Achievement Gap

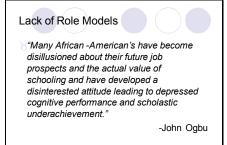
"There's tremendous implications for the future of race relations in the nation. If something isn't done, we'll end up with a bifurcated society."

- Dr. Ronald Ferguson

	Math	Pre-Elem Algebra	Alg/Coord Geometry	Plane Geom/Trig
African American	16.9	8.3	8.3	8.3
Native American	18.6	9.4	9.0	9.5
Caucasian	21.4	11.4	10.5	11.0
Mexican American	18.6	9.5	9.1	9.5
Asian	23.4	12.3	11.7	12.1



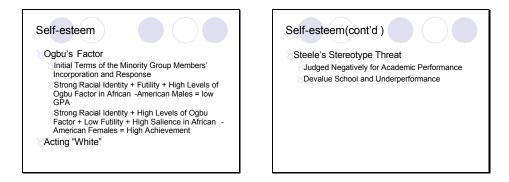






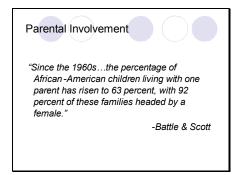
"The devalued status and overarching presumption of inferiority that society holds regarding African -Americans permeates the walls of academia, often limiting teachers' support for and expectations of African -American students."

-Claude Steele

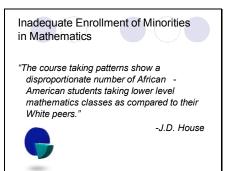


#### Self-efficacy and Stress

- High Risk Neighborhoods "This state of condition is linked to self efficacy" (Cunningham et al., 2002).
- Products of Their Environments "Contextual stress influences self -esteem which is related to academic outcomes" (Cunningham et al., 2002).







### Inadequate Enrollment of Minorities in Mathematics

- Recruitment Eurocentric Elitism and Social Stratification
- Teacher Expectations

Course Taking and Curriculum Tracking Teaching Methods Isolation from Other Minorities

# Common Difficulties in Mathematics

- Rational Numbers (Fractions, Decimals, & Percentages)
- Verbal Problem to Mathematical Models
- Fear and Anxiety (Roberts & Saxe, 1982)

#### Teaching Methods for Probability and Statistics

- Cognitively Guided Instruction (CGI)
- Cooperative Learning
- Question Posing Simulations
- Real Life Problems
- Visual
- Remove Irrelevant Information

#### Exploratory Data Analysis

- Descriptive Statistics Common Misuses
- Strategies for Rational Numbers
- Confront Common
- Errors World Views

