Quantitative Literacy for Education Majors

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Spencer Foundation Initiative on Data Use and Educational Improvement, 2011

- Data-driven decision making is a priority
- Data use should be a fundamental part of educators' everyday work
- Being able to read and understand the data, being able to interpret them, and being able to apply data to inform (instructional) decisions
- There is a need to develop data literacy for preservice teachers

Integrative Core Curriculum (ICC)

- Themes and Perspectives Sequence
- QL readiness and Academic Writing
- Diversity, Quantitative Literacy, Writing Intensive Attributes
- ICC Capstone
- Complementary Liberal Arts course work
- Electronic Learning Portfolio

Quantitative Literacy Attribute

- These courses will help students to develop the ability and habits of mind to investigate and interpret quantitative information, critique it, reflect upon it, and apply it, all in the context of the issues that motivate the course.

Numbers in Education

- Achievement gap
- Quantitative research in education
- Data-driven instruction

Introduction

- "We have a 40 to 50 percent dropout rate in our inner-city schools."
- "Right now, America has $1.1 trillion of student debt. That's more than credit card debt."
- "The highest paid employee of the State of Rhode Island is a basketball coach."

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The highest paid employee of the State of Rhode Island is a basketball coach.

— *Deadspin on Tuesday, August 13th, 2013 in a website*

Deadspin says URI basketball coach is highest paid R.I. state employee

By Gregory Smith on Sunday, September 29th, 2013 at 12:01 a.m.

For years, the lofty pay of college football and basketball coaches has been the subject of controversy. And that has drawn the attention of the popular sports website Deadspin.

Deadspin claims, based on news media reports and state salary databases, that the large majority of the highest-paid state employees in each state are football and basketball coaches, some of whom have multimillion-dollar compensation packages. And the website says that this calls into question our priorities as a society.

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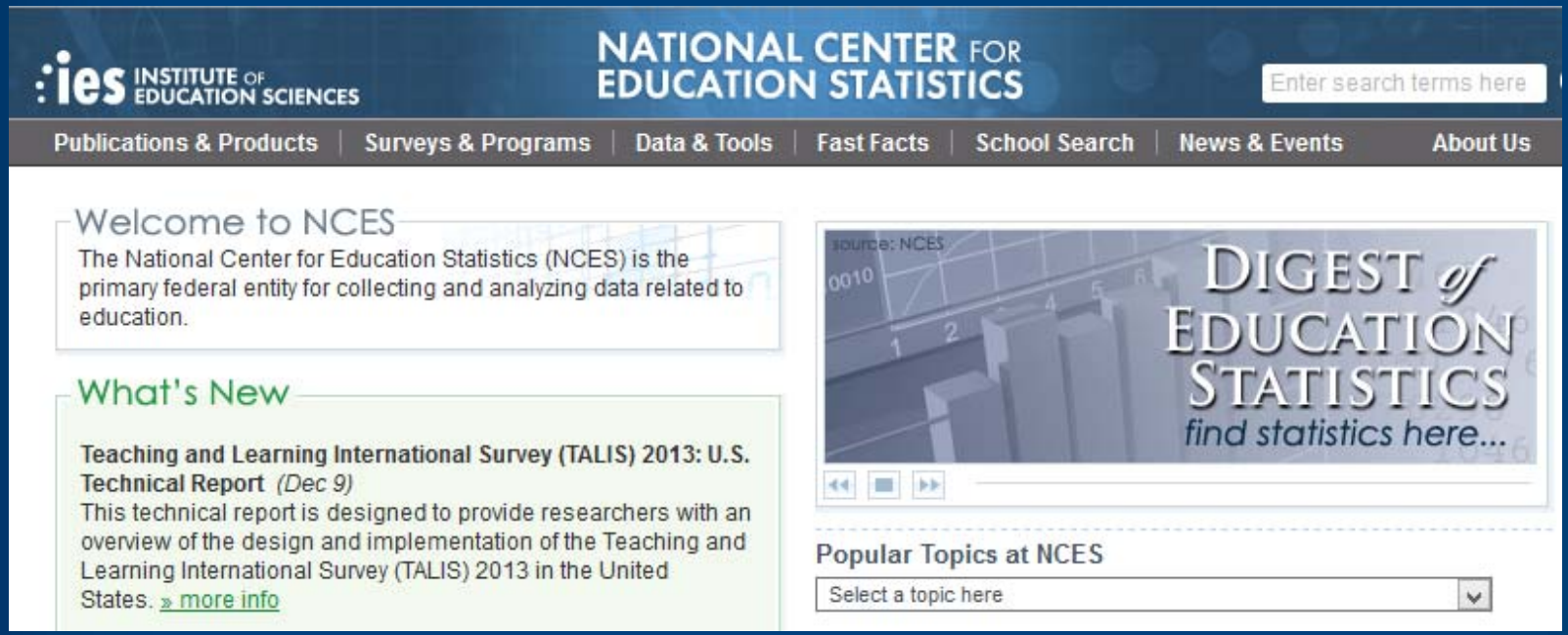
Achievement gap



NAEP data

NAEP Data Explorer
Analyze Data | Sample Questions | State Comparisons | State Profiles | District Profiles
NDE
Do you have questions about what the nation's students know and can do?
With the NAEP Data Explorer (NDE) you can create statistical tables, charts, and maps to help you find
MAIN NDE
The Data Explorer for Main NAEP provides national and state results in 10 subject areas, including mathematics, reading, writing, and science. Results have been produced for the nation and participating states and other jurisdictions since 1990, and for selected urban districts (on a trial basis) since 2002.

Topics

- Variables
- Percentages
- Spreadsheets (Excel)
- Formulas
- Absolute and relative quantities
- Graphs
- Basics of statistics (sampling, bias)
- Guidelines to analyze statistical studies
- How to read research reports

- How to find research reports
- Measures of center and spread
- Representations of relationships
- Using pivot tables

Activities

- Weekly postings of stories in the news related to education and involving quantitative arguments
- Weekly assignments (creating graphs, describing graphs, math content)
- Three major projects
  - Achievement gap
  - Opposing views in research
  - Assessment data
- Peer review of papers

Student reflection

I remember looking at numbers at the beginning of the semester and being able to describe what they were, how they were measured, etc.. but not being able to fully discuss their impact on the subject discussed. Specifically, I remember not being able to make assumptions about student learning from assignments related to the Achievement gap. Now I feel much more able to describe exactly what those numbers represent, regardless of what is subjectively commented on by a presenter of the data.