Abstract Title:
Data Visualization to Assess Interventions to Improve STEM Learning in K-12

MSP Project Name:
Louisiana Math and Science Teacher Institute

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120 word summary:

Louisiana tests about 300,000 thousand students annually and as in many states, statistical modeling of this data is being proposed as a means of assessing teacher performance. The data, complete with teacher identifiers, is available to researchers. In this presentation, I will demonstrate some visualization formats and methods that our project has developed to guide the use of this data. Users of all levels of sophistication can explore the data meaningfully, generate hypotheses and examine model assumptions. Interactive features enable viewers to select level of analysis (state, district, school, student) and make comparisons within and across levels. We show applications to real data to demonstrate usefulness, but it is not our purpose present any performance judgments at this time.

- Section 1: **Questions for dialogue at the MSP LNC**.

    1. Under what circumstances is it reasonable to expect the effects of MSP interventions to be evident in state test data?

    2. How should MSP projects respond to the pervasive interest of school administrators and education leaders in standardized test data?

    3. When it appropriate measure project success using performance measures established by states and based on standardized tests?

    4. When such measures are not appropriate for measuring MSP success, how should district leaders and state officials be apprised.

    5. What roles might projects play in influencing the interpretation and use of standardized test data?

- Section 2: **Conceptual framework**. This section should include your project's definition of "student success" and an explanation about your project's design for measuring student success.

  Student success necessarily refers to objective, measurable attributes of students or student populations. Success may be measured in various contexts, e.g., in a specific learning activity, in a specific course or in a specific subject over several years. Evidence for success may include indicators of competence as well as indicators of attitude and motivation.

  Because state and district leaders place a very strong emphasis on student test data, our project accepts this as a central measure of student success. But this means examining the meaning of this particular data source with care. We must assure that it is not used in a way that obscures or compromises other measures.

  Section 3: **Explanatory framework**. This section should describe what you are finding, or are set up to learn, about student success, and how it is informing, or will inform, your MSP work.

  We have indications that student test data may fail to detect effects of large, well-planned and closely-monitored curriculum-centered interventions. We also have indications that some schools are able to achieve and maintain astonishing gains in student performance by providing an environment that fosters strong, caring bonds between well-informed , thoughtful adults and the children they teach. These findings challenge us to create a teacher community that is not only loyal to science, but that marries this with an intense loyalty to children.