



STEM MINDEDNESS: DATA-INFORMED DECISION-MAKING

Data-informed decision-making in a STEM school is a collaborative, recursive process that includes the analysis of school-based data, along with workforce and global needs projections, to gain actionable information used to guide and monitor school decisions.

Collaborative Process

A school community is made up of multiple interdependent components. Changes in any of the workings have an impact on the others. For this reason, data-informed decisions should include multiple stakeholders. While not all stakeholders can or should be expected to collaborate on all decisions, consideration should be made to ensure the appropriate stakeholders are involved in decision-making.

Existing and Desired State

The desired state is defined by the goal in mind. In a STEM school, the desired state is driven by the nation's need for more individuals earning STEM-specific degrees and choosing STEM careers—in general, the citizenry becoming more STEM capable.

The existing state is evaluated through multiple data points. The “gap” between existing and desired state provides the starting place for improvement. Victoria L. Bernhardt, in her book *Data Analysis for Continuous School Improvement*, says, “Data not only tell us where we have been, where we are right now, and where we are going; data inform us of the ways to get there, sensibly.”

Cycle of Inquiry

Protocols provide purposeful structure as stakeholders make meaning of the data to reach decisions. A report from the Institute of Education Sciences encourages school teams to engage in a “cycle of inquiry.” This multi-step process involves analyzing data, developing hypotheses, formulating and implementing action plans, and then once again analyzing data to evaluate progress and inform next steps. This approach ensures that all school actions are examined for their impact on student achievement and on the school's goals for teaching and learning.

Preparing for the Future

STEM schools need to keep pace with the rapid rate of change in today's world. The decision-making process should use available technology to ensure decisions are timely and allow for adaptability.

For success in the 21st century, all school stakeholders, including students, must become proficient at data-informed decision-making. It is essential they understand how to sift through the multitude of data from multiple channels to gain information to navigate change. STEM schools provide opportunities for staff and students to engage in this process for maximum success.

Bibliography

Bernhardt, Victoria. *Data Analysis for Continuous School Improvement*. Larchmont, NY: Eye on Education, 2004. Print.

Institute of Education Sciences

http://ies.ed.gov/ncee/wwc/pdf/practice_guides/dddm_pg_092909.pdf



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Guiding Questions

Use the reflection questions below to guide discussions. We recommend documenting evidence to support each question. Doing so will assist you in setting action plans, goals, and progress monitoring.

Collaborative Process

- What processes and procedures do you have in place to ensure that the appropriate stakeholders are involved in decision making at your school?

Existing and Desired State

- What information does your current data decision-making give your school about your current situation?
- What clues does your current data decision-making give as to what will lead to improvement?

Cycle of Inquiry

- What protocol(s) do your school teams use to make meaning of the data and plan action steps?
- What protocol(s) are in place to analyze effectiveness of action and determine next steps?

Preparing for the Future

- In what ways are you using available technology to ensure decisions are timely?
- In what ways are you ensuring that all stakeholders, including students, understand how to analyze data from multiple sources and use that information to navigate change?