

Facilitating Data-Driven Discussions

Purpose: This tool offers recommendations for state-, region-, or institution-level planning when 1) formulating questions about mathematics pathways, 2) collecting data to answer those questions, 3) presenting the data to different audiences, and 4) facilitating discussion about the data.

Users: Facilitator and co-chairs (“executive team”) and/or institutional leadership team

Instructions: Follow the four steps in this resource to plan discussions about data.

Step 1: Formulating Questions

Data collection and discussion begin with identifying the questions that you want to answer. The table below provides examples of questions that commonly arise in work on mathematics pathways.

Examples of Common Questions	Types of Data
<ul style="list-style-type: none"> What trends exist in success and failure rates in gateway and developmental mathematics courses? 	Success and failure rates in courses
<ul style="list-style-type: none"> What is the distribution of student enrollment across gateway mathematics courses? 	Distribution of enrollment across gateway mathematics courses
<ul style="list-style-type: none"> What progress is there through the calculus preparation sequence? How many students who begin in developmental mathematics courses progress to calculus? How many students who begin in college algebra enroll in or succeed in calculus? Among students who take or pass calculus, what was their first mathematics course in college? 	Completion rates through the calculus preparation sequence by first mathematics course
<ul style="list-style-type: none"> Do students wait to complete mathematics requirements? 	Enrollment in first mathematics course after initial college enrollment
<ul style="list-style-type: none"> How often do students move from non-STEM fields to STEM fields and vice versa? 	Changing majors or indicators of major change, such as taking courses in the calculus sequence after taking non-algebraically intensive mathematics courses
<ul style="list-style-type: none"> What are the transfer patterns across institutions and in different programs? Are credits lost? Is there evidence that mathematics courses seamlessly transfer or fail to transfer? 	Transfer patterns, degrees by program among transfer students, credit accumulation by transfer status
<ul style="list-style-type: none"> How applicable are mathematics pathways to programs of study across institutions? 	Math requirements for the same major across institutions

Step 2: Collecting Data

- Collaborate with a state agency and/or institutional research (IR) office on data collection efforts. Ensure that they understand what questions you want to answer so they can advise you on what data are available and should be collected.
- Plan for the amount of time between data request and receiving such data.
- Consider the importance of the data being collected to make sure you focus resources on data relevant to diverse stakeholder groups.

Step 3: Presenting the Data

- Present data to planning teams in readable formats such as tables, charts, and graphics. If the data are complex, consider sharing them in advance so members have more time to review.
- Limit the amount of data to the relevant questions being answered.
- Present data in small chunks that an audience can make sense of in 1 to 2 minutes.
- Ask a representative of the IR staff to participate in the discussion to address questions about the data and advise on future data collection.
- Use time and resources efficiently when presenting data.

Step 4: Facilitating the Discussion

Plan for a structured discussion that will allow team members to first make sense of the data and then to analyze them.

- Start with a summary and clarifying questions. Ensure that all team members understand what the data represent before moving on to further discussion. Example:

This data set represents all first time in college students enrolled in a college-level mathematics course in Fall 2014. The columns represent each course and the rows represent institutions. We will take a few minutes to review and then check to see if anyone has any clarifying questions.

- Allow enough time for every team member to review. Even if data were provided in advance, it can be useful to give members a few minutes to refresh their memories.
- Consider the following sample questions to structure the discussion:

Start: *What stands out to you? Does anything surprise you?*

Deepen: *What trends do you see? Are there any outliers?*

Analyze: *What contributes to the trends and/or outliers? Are these trends and/or outliers indicators of a problem? If so, what is the problem?*

Summarize: *Do we have enough evidence to define a problem? If not, what other data do we need?*