Marshall Street

How-To:

Design and Prototype a Data Dashboard

NAVIGATING DATA FOR MULTI-TIERED SYSTEMS OF SUPPORT

A collection of research-to-impact practices developed with the Networked Improvement Community for Students with Disabilities

How-To: Design and Prototype a Data Dashboard

Guidance Document for School and Network Leadership

Introduction **8.3**

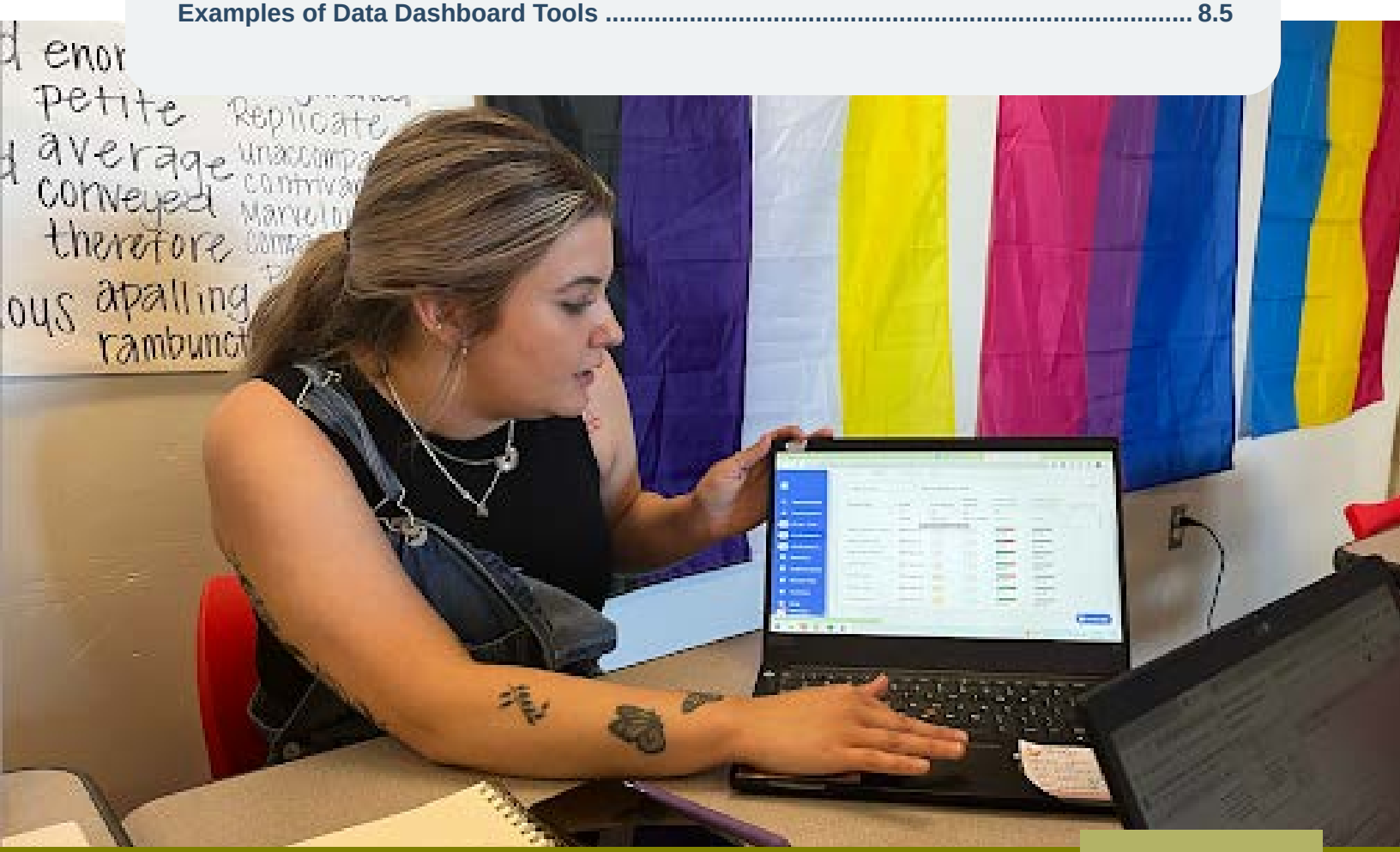
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Introduction

When existing data tools do not meet current needs and a school or network chooses to design a custom data tool, it is important to invest the necessary time and effort to ensure the tool is useful, usable, and utilized. Using Excel, Google Sheets, Tableau, or another data visualization tool, teams can customize a dashboard to import and manipulate data to suit the measurement effort. To do this successfully, school systems typically need an experienced data team with the knowledge and capacity to implement these technical needs.

The iterative process necessary to develop an effective data tool can be time-intensive. The following steps may be helpful when planning for this process.

Design and Develop

First, during the design stage, identify a clear purpose for the data dashboard and define core priorities. The purpose and priorities should connect to student outcomes (e.g., achievement, GPA, attendance, or social-emotional skills) aligned with the school's mission.

The following questions are important to answer during this phase:

- **WHO ARE THE PRIMARY USERS?** (e.g., teachers, grade-level teams, school leaders, or central office)
- **AT WHAT LEVEL SHOULD EDUCATORS ANALYZE DATA?** (e.g., individual students, subgroups, class periods, courses, teacher, or school)
- **WHAT WILL EDUCATORS NEED TO BE ABLE TO DO WITH THIS DATA?** (e.g., reflect on a lesson, reflect on a unit, or identify gaps between subgroups)
- **HOW MUCH TECHNICAL ABILITY DO EDUCATORS NEED TO DEVELOP TO USE THE TOOL EFFECTIVELY?**
- **HOW WILL DATA BE INPUT OR DOWNLOADED INTO THE TOOL, AND WHO WILL MANAGE THAT PROCESS?**
- **HOW MUCH TIME WILL EDUCATORS NEED TO DEVOTE TO THE TOOL OUTSIDE OF MEETINGS?**
- **HOW OFTEN WILL EDUCATORS ACCESS THE DASHBOARD?** (e.g., daily, weekly, biweekly, or monthly)

Building a Dashboard at Collegiate

Collegiate Academies found, early on, that their general student information system (SIS) did not allow teachers to view student mastery of standards by the types of filters they needed (e.g., grade levels, class periods, or subgroups) to evaluate and respond appropriately to the data in order to reteach skills students hadn't mastered. For that reason, Collegiate opted to create their own tool for looking at students' progress on standards and subsequently developed a spreadsheet dashboard that let teachers easily see how students were progressing on each standard and devise plans for how to teach and reteach skills.

These questions will help determine how to design the initial prototype of the dashboard. Key stakeholders may also have valuable input into what the dashboard should look like and how it should function.

Set Up Data Dashboard

Build a prototype of the data dashboard based on the defined purpose, priorities, and requirements gathered in the design phase.

Using school-wide goals, determine which classroom-level data points best measure the goals to be used in the dashboard. These measures need to be relatively easy for teachers to collect with fidelity and consistency. Examples of data include:

- engagement measures, such as attendance or assignment completion;
- formative assessments, like exit tickets, checkpoints, or independent practice; or
- summative assessments, including project grades, course grades, or unit tests.

Once the dashboard is established, test it for usability by teachers.

Building Tools for Every Level

Schools can choose between multiple, discrete dashboards that each serve a primary purpose, or nested dashboards that provide a one-stop-shop data experience for an entire school system. For ease of access, a single, nested dashboard allows teachers and district leaders alike to view the same data at different levels of aggregation, each using the dashboard to meet their individual objectives. For example, a chief academic officer can be monitoring school-by-school and student-group-by-student-group progress, while a school leader can track that data as well as classroom-by-classroom or grade-by-grade student progress. Teachers have access to this same data, but can focus their efforts on understanding their own students on a more granular level or collaborate across their grade-level team.

Test and Improve

Test the prototype with teachers, who can give input on the tool's utility and ease of use, using a small set of representative data. Will users be able to easily disaggregate data at many different population levels, including class periods and subgroups? Can they easily refresh data or upload new data? Considering these factors will help set the dashboard up for successful use.

The initial testers should be key individuals whose buy-in will be important to garner. By engaging these individuals early, you provide transparency into the process and can integrate their perspectives, so they can champion the prototype's use later. These individuals will likely be:

- lead teachers or department heads,
- coaches,
- school leaders, or
- other educators or leaders whose voices are important to new initiatives.

The first prototype of the dashboard will not be perfect, so it is essential to create something simple and be prepared for feedback. Continue to iterate on the dashboard with users until it has the functionality desired to meet the stated objectives.

Throughout the prototyping phase, give special attention to how users actually interact with the dashboard. Anticipate challenges educators may have and training they may need to use the dashboard effectively.

Routinely Assess Implementation and Quality

After developing and refining the prototype, consider establishing a team structure that allows regular assessment of the implementation and quality of the tool. A structured approach allows teams to systematically evaluate how the tool is being used and its effectiveness. Frequent evaluation of sample data can provide insights into the way individuals and teams are using the tool, identify emerging trends, and pinpoint barriers in implementation. NIC partners found a quarterly review cadence — to review how the tool is being used and to do a strategic set of empathy interviews with users at the classroom, school leadership, and district levels — allowed them to make timely adjustments to the tool, integration settings, and training plans for team members.

Backward-plan timelines for each of these steps to occur based on the final target roll-out date. In order to train leaders and educators on how to use the tool before school starts in the fall, testing of the tool should be complete by the end of the prior school year.

Developing with the End User is Essential

The successful development of any new tool or protocol requires its own cycles of improvement. Both **STEM Prep** and **Collegiate Academies** spent approximately a semester getting feedback from users at regular intervals through surveys and interviews, which helped their development teams troubleshoot issues and improve inefficiencies. For example, Collegiate Academies learned that many teachers did not have enough knowledge on how to use Google Sheets for them to create filters on their own. As a result, the team created filters ahead of time for teachers and did not take for granted that teachers could learn how to use Google Sheets on their own. In addition, they designed additional training to increase current and future staff capacity to use Google Sheets independently.

EXAMPLES OF DATA DASHBOARD TOOLS

*Below: Summit's Rostering Tool includes multiple tabs, which are explained in the **Summit Rostering Task Card**.*

- STEM Prep Grade Book Distribution Dashboard
- Collegiate Academies April Dunn Tracker
- STRIVE Prep Student Conferencing Tracker
- Uncommon Schools Reading Intervention Tracker
- Summit Prep Student Support Block Tool

	A	B	C	G	H	I	L	M	N	O	P
1	USE PLUS SIGN (+) ABOVE COLUMNS TO EXPAND FOR MORE DETAIL										
3	Grade	Student Name	Mentor	LC Schedule	Is MLL?	MLL Teacher	Gender	Race	Assignment	Teacher/Room	Mon, 11/6
4	9	[redacted]	J Barco		☐		M	Black or African American	Outside- Meet in OLS1		
5	9		J Barco		☐		X	White	Yoga		
6	9		J Barco		☐		M	Hispanic	Outside- Meet in OLS1		
7	9		J Barco		☐		M	White	Outside- Meet in OLS1		
8	9		J Barco		☐		M	Black or African American	Grayson Support		
9	9		J Barco		☐		M	Two or More Races	Outside- Meet in OLS1		
10	9		J Barco		☐		F	Two or More Races	Outside- Meet in OLS1		
11	9		J Barco		☐		M	White	Allen Support		
12	9		J Barco		☐		F	Black or African American	Allen Support		
13					☐				Grayson Support		
14	9		J Barco		☑		F	Black or African American	Earl Support		
15	9		J Barco		☑	Brittany Allen	F	Black or African American	Allen Support		
16	9		J Barco		☐		F	White	Outside- Meet in OLS1		
17	9		J Barco		☐		M	White	Game Room OLS2		