



DO NOW (3 minutes) :

Rank these four ideals for data systems in schools, in order of priority, and reflect on why you ordered these ideals the way you did.

- a) Data consistency *(every teacher's "B+" indicates the same level of excellence)*
- b) Data accuracy *(data can be counted on as reliably true)*
- c) Ease of data entry *(demands little from school-based staff amidst their hectic schedules)*
- d) Accessibility of data *(everyone who has a stake in the data can view it when they want to)*

We will share out after 3 minutes.

DATA SYSTEMS THAT SCALE

Lessons Learned from Expansion at Democracy Prep



MARK CHENG

Director of Data Management
mcheng@democracyprep.org

DEMOCRACY PREP APPROACH



Thoughtful data use has long been spoken of as one of the key tenets of the Democracy Prep approach.

Democracy Prep

- 4 schools, ~100 employees, ~1000 students
- Exclusively in New York City
- Heavy reliance upon leadership talent to drive success; no reliance upon systems

Use of data

- Excel used for any data-related task or report
- Information buried in spreadsheets on employees' local hard drives
- Processes relied on institutional knowledge; no codification/documentation
- Data siloes; lots of one-off trackers used to track similar data points
- Duplicate data entry and version control issues
- Charts and aggregated reports created on ad hoc basis, no underlying data
- Data Team, gatekeepers of data; a workflow bottleneck

Democracy Prep

- 14 schools, ~650 employees, ~4400 students
- Expanded to New Jersey, DC, and Louisiana (in the fall), with turnaround situations in three locations
- With personnel changes at the CEO-level and in school leadership, a continued track record of success owing at least partly to the improvement in systems and processes

Use of data

- A more rigorous set of tools beyond Excel, including Access, SQL, Tableau, R
- Data warehouse storing student data on academics, attendance, behavior
- Staff website containing clear codification/documentation of processes
- Box.com for cloud-based data storage, when static files still needed
- Regular reports driven off of live data (through data warehouse connection)
- Staff empowered to pull reports, not needing to go through Data Team
- More time from the Data Team dedicated to strategic research

Meet the Data Team

- Chiv, Sr. Director of Information Systems
- Mark, Director of Data Management
- Ryan, Information Design Specialist
- Rick, Data Associate

Scope of work

- Formed officially less than two years ago
- Part of the CMO/network team; situated in an office, not a school
- Formerly the Operations team, which oversaw tech/facilities/school-based operations too
- Separate from Accountability team, but with frequent interaction
- Primary functions are management of student data, input systems, reporting of results to stakeholders, and analytic support for CMO



The Challenge

With 6th grade being an entry grade for many of our charters, we had large cohorts where a specific profile of students consistently struggled.

- Students with disabilities comprise 30% of our 6th grade cohort
- 40% of that SWD population receives specialized instruction for 60% of the day (the highest level of service provided)
- Proficiency rates and growth percentiles for this subgroup were indicating that adequate support would need to look different

DEMOCRACY PREP APPROACH



We have a strong commitment to serving all scholars, especially our students who may require the most supports.

The Investigation

The Data Team partnered with one of our academic experts in educating students with disabilities.

- We identified a discrete set of students who were underserved and falling behind using academic performance measures
- We found that the issue was common to all our middle schools, and signaled a systemic issue
- We examined the root and extent of their academic struggles, and created *early detection criteria* based on prior-year test scores, MAP scores and IEP status

Action

Since then, we have created a *new school/intervention program* opening this fall, called Pathways, which focuses on meeting the needs of this specific population with additional supports and smaller class sizes. We are continually informing and tweaking the process:

- The identification of students into this program
- The setting of targets for growth and mastery (to place out of this intervention)
- The evaluation and tracking of progress within this program

The network has wholeheartedly embraced the new data-driven initiative to reach our highest-needs students with these additional supports.

INGREDIENTS FOR TRANSFORMATION



Every school was recording data in their own school-specific way, because there was no network oversight. So we first sought to *understand*. We got involved with school ops teams to better comprehend their needs.

The next step was *codification* of our data input into the SIS (standardized attendance codes, beginning-of-year setup training). We released an operations manual. Things have since then been moving well in the direction of standardization.

We *standardized metrics* for tracking success, and created buy-in for our common processes by comparing school-to-school success on these metrics.

A year ago, we promoted a leader internally to the role of *superintendent* to oversee schools.

She brought a strong vision and wanted a high minimum-threshold of rigor. She also had an eye for *standardization* and *lean processes*.

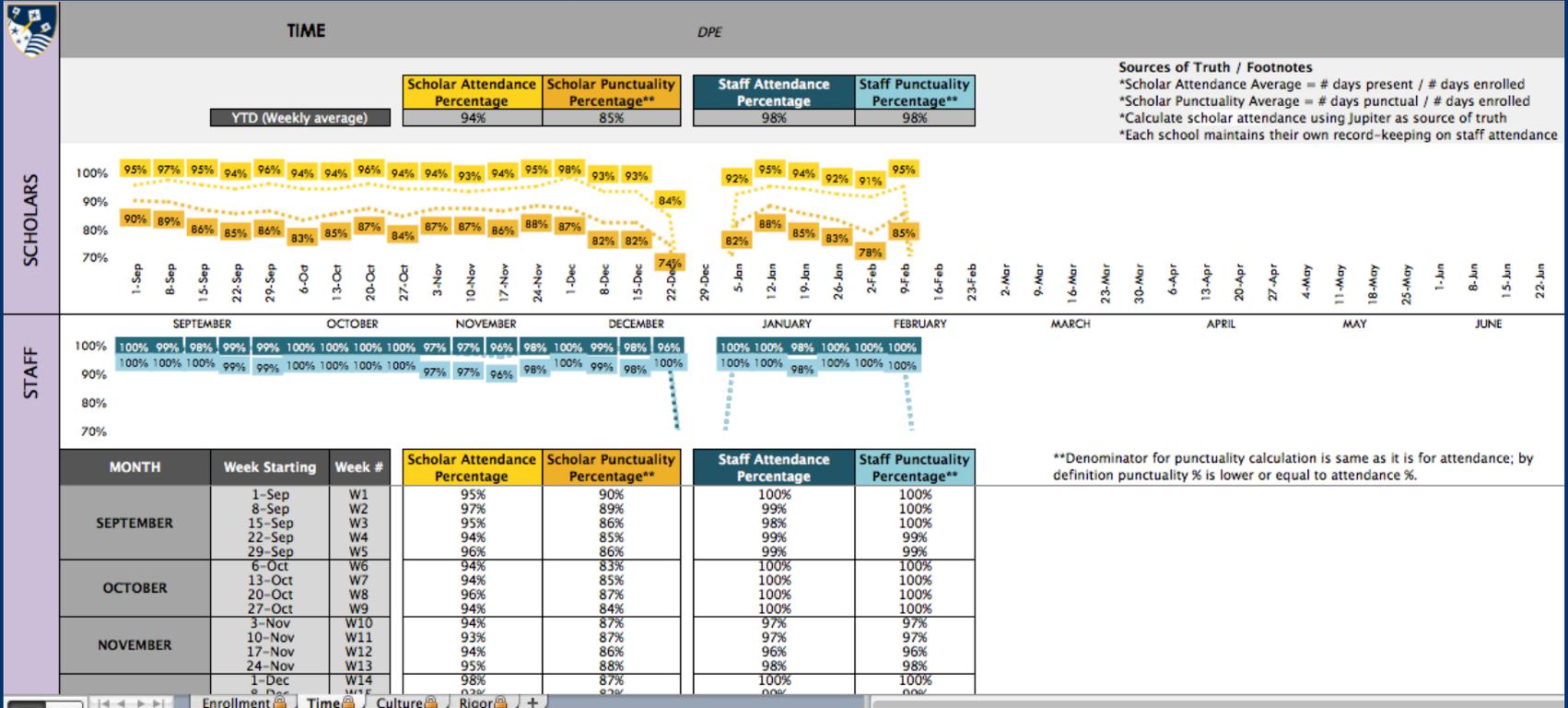
She pushed the standardized metrics we use for tracking success, implemented through the use of *school leader dashboards*.

Issues that were previously seen as operations-related issues became academics issues; namely academic policy, improving the administration of internal assessments, streamlining report cards.

Data Team brought a *higher level of mathematical rigor* to complex academic topics (such as teacher evaluation, item analysis for tests).

School Leader Dashboards

Common language for assessing performance across schools



MONTH	Week Starting	Week #	Scholar Attendance Percentage	Scholar Punctuality Percentage**	Staff Attendance Percentage	Staff Punctuality Percentage**
SEPTEMBER	1-Sep	W1	95%	90%	100%	100%
	8-Sep	W2	97%	89%	99%	100%
	15-Sep	W3	95%	86%	98%	100%
	22-Sep	W4	94%	85%	99%	99%
	29-Sep	W5	96%	86%	99%	99%
OCTOBER	6-Oct	W6	94%	83%	100%	100%
	13-Oct	W7	94%	85%	100%	100%
	20-Oct	W8	96%	87%	100%	100%
	27-Oct	W9	94%	84%	100%	100%
NOVEMBER	3-Nov	W10	94%	87%	97%	97%
	10-Nov	W11	93%	87%	97%	97%
	17-Nov	W12	94%	86%	96%	96%
	24-Nov	W13	95%	88%	98%	98%
DECEMBER	1-Dec	W14	98%	87%	100%	100%
	8-Dec		93%	82%	99%	98%
	15-Dec		93%	82%	98%	98%
	22-Dec		74%	84%	96%	100%
JANUARY	5-Jan		92%	82%	100%	100%
	12-Jan		95%	88%	100%	98%
	19-Jan		94%	85%	100%	100%
	26-Jan		92%	83%	100%	100%
FEBRUARY	2-Feb		91%	78%	100%	100%
	9-Feb		95%	85%	100%	100%

**Denominator for punctuality calculation is same as it is for attendance; by definition punctuality % is lower or equal to attendance %.

Enrollment Time Culture Rigor +

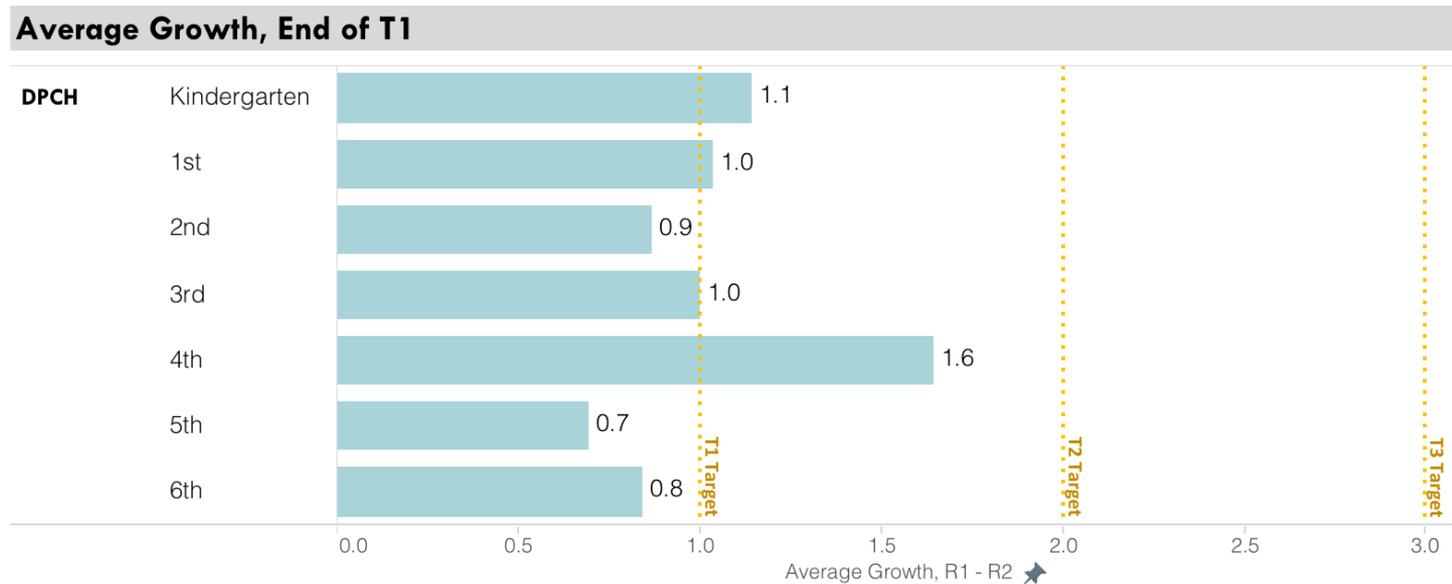
We started administering common trimester-end *internal assessments* last year. These network-created exams have helped us benchmark our schools (and students) in relation to one another.

- Assessments cover six subjects
- 70% passing threshold
- Tests worth an equivalent percentage of final grade at all schools

Along with internal assessments, we also pushed the common use of the *NWEA MAP assessment*, 2x/year in ES/HS, and 3x/year in MS. This exam helps us get a pulse on longitudinal growth.



In as many areas as possible, we've tried to *push live data* instead of *pulling static reports*. This was largely facilitated by the data warehouse that we spent months developing.



Reading assessment data for Democracy Prep Congress Heights, first-year CSP-funded turnaround in Washington, DC's SE quadrant.

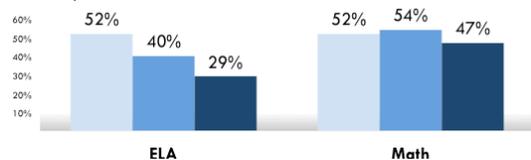
Since distancing ourselves from the direct work of Operations, we have been able to ask more strategic questions, leveraging our analytical skills for research questions:

- Exploring the relationship between MAP score gains and trimester grades
- Supporting strategic decision-making around academic issues in our new Pathways IEP program
- Report-building on more nuanced questions, for example adding subgroup analysis features wherever possible for IEP students

With the increased fluency and appetite for data, the conversation in our network is *no longer concerned solely with proficiency*. They have developed both the desire and aptitude for understanding distributions and growth metrics.

Percent Proficient, Harlem Prep

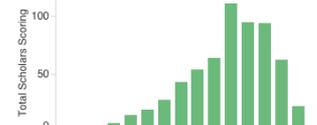
Grades 3-5, ELA & Math



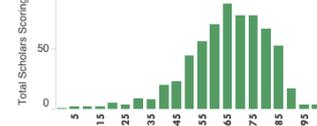
← Standard proficiency bars

Histograms →

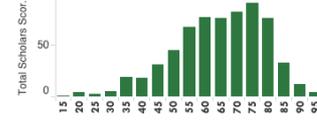
6th Grade



7th Grade

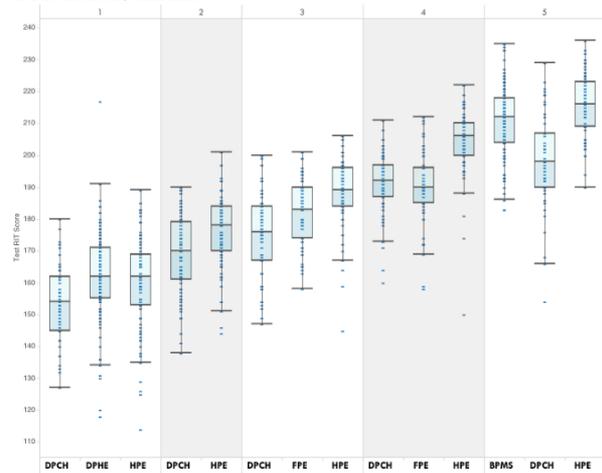


8th Grade



Grade	Subject	Pass Rate	High Pass Ra..	Total Scholars	Network Pass Ra..
6th	Literature	62%	18%	624	62%
	Math A	65%	31%	626	65%
	Math B	78%	46%	626	78%
	History	81%	41%	625	81%
	Science	74%	34%	626	74%
	Writing	62%	20%	626	62%
7th	Literature	47%	16%	631	47%
	Math A	45%	14%	630	45%
	Math B	64%	32%	630	64%
	History	57%	21%	628	57%
	Science	61%	22%	630	61%
	Writing	48%	18%	630	48%
8th	Literature	46%	13%	644	46%
	Math A	55%	21%	644	55%
	Math B	60%	19%	582	60%
	History	70%	25%	644	70%
	Science	62%	24%	644	62%
	Writing	66%	21%	644	66%

RIT Score Distribution, Mathematics



← Box-and-whisker distribution plots

Democracy Prep's data challenges are probably not unique.



We have witnessed firsthand a lot of the transformation since 2011. While a Data Team is a necessary component, it alone can not shift the culture of an organization around data; it requires buy-in from leadership and at all levels to happen effectively.



A *comprehensive suite of reports* for people at all levels of our organization, from teachers to school leaders to the CEO and superintendent

Increased automation of tasks and report-building so that the bulk of data requests are easily attainable by the requestor and no longer bottlenecked by the Data Team

A *user experience* of interacting with reports in a way that is actionable, informative, and engaging

Increasing the level of *data fluency* throughout the network, via targeted professional development

DISCUSSION QUESTIONS:

- 1) To what extent are data quality issues existent in your organization? And to what extent is your work affected by such issues?
- 2) In your experience, what cultural shifts in an organization need to happen to facilitate better data quality?
- 3) Do you have any helpful tips for tools that can facilitate data analysis?

