Online Supplement Appendix for the article Collaborative Data Dashboard Design for School Improvement

This document is an online supplement appendix for the article published in the journal *Information and Learning Sciences* titled Collaborative Data Dashboard Design for School Improvement by Alden P. Burnham and Alex J. Bowers.

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For more information on the article and research study, please refer to the full article:

- Burnham, A.P., Bowers, A.J. (2026) Collaborative Data Dashboard Design for School Improvement, *Information and Learning Sciences*. http://dx.doi.org/10.1108/ILS-12-2025-0245

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Online Supplement A1

Qualitative codes used to analyze interviews.

Action	Practice	Code
Discuss	- Discuss data with a parent - Discuss data with a student - Choose which parents to contact	Parent Student Chooseparent
Monitor	- Monitor school attendance - Monitor school discipline - Monitor school course enrollment - Identify areas of need - Evaluate teacher performance	Monattend Mondisc Moncourseenrol Needsassess teacherperf
Strategy	- Talking with other teachers about data implications for instruction - Developing/choosing appropriate instructional strategies - Discuss student progress or instructional strategies with other educators - Meet with a specialist about data - e.g., instructional coach	talkimplications Instrstrategy Stratdiscuss Specialist
Planning	- Planning instruction prior to school year - Tailor instruction to individual student needs - Scheduling interventions	Planprior Diffplan Schedint
Placement	- Recommending students for gifted programs - Recommending students for special education - Recommendations for tutoring or other educational services for students - Form small groups of students for targeted instruction - Assign or re-assign students to classes or groups	Recgifted Recsped Recservice Targinstr assign
Goal setting	- Set learning goals for individual students - Having students set personal goals for MAP scores/growth - Developing IEP goals for special education students. - Setting individual, group, or classroom wide student performance goals - Setting team (grade level, PLC, etc.) goals	Studgoals Iepgoals teamgoals
Celebration	- Celebrating students' improvements and/or scores - Celebrating team and/or school successes	Celebratestud Celebrateteam
Gathering information	- Comparing MAP with other assessment data - Retesting or administering another assessment to gather more information	Compareassess Moreassess
Learnstud	- Identifying students' strengths and weaknesses - Identify learning needs of students who are struggling - Identify learning needs of students who are not struggling - Learning about incoming students' performance	Studstrwknss Strugneeds Notstrugneeds Incomperf

Note: Codes were adapted from the 36 practices identified by Farley-Ripple, Jennings, and Buttram (2019) and adjusted to focus on school principal data practices based on Wayman *et al.* (2012).

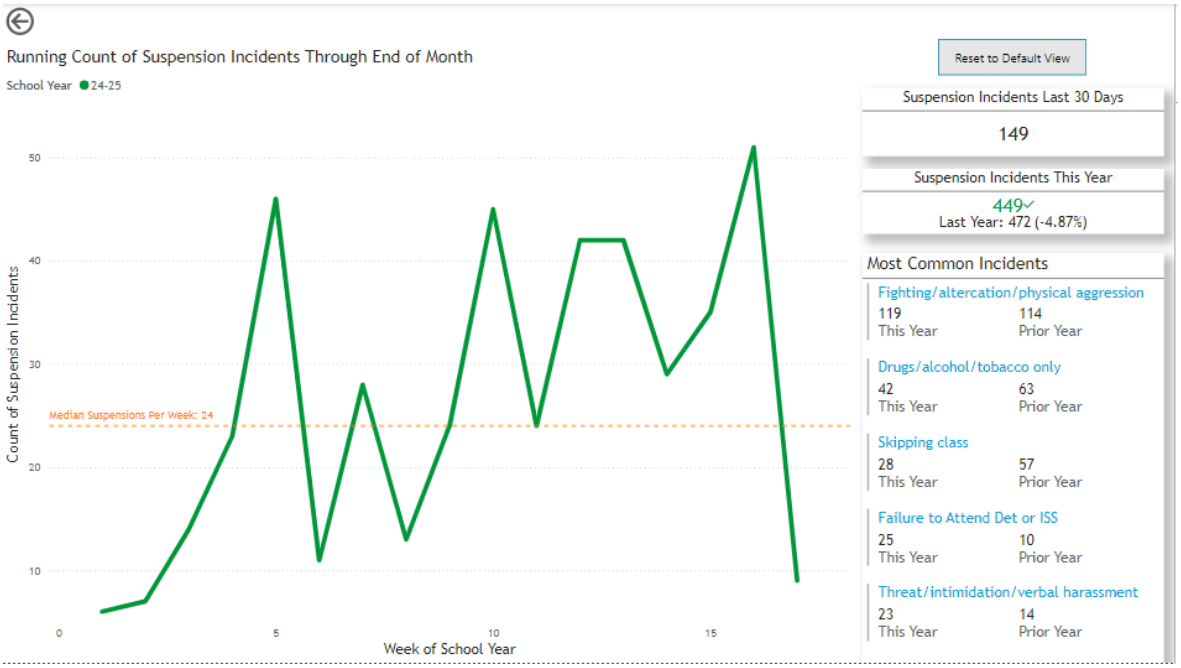
Online Supplement A2

Descriptive statistics for system log data between May and November 2024.

ReportPage	Total Views	Users logged onto report	Min	Max	Mean	StDev
Data Wall	2406	141	1	47	4.506	6.361
Custom Chart	1462	121	1	49	5.007	6.693
SRBI Tier Changes	339	70	1	22	2.568	2.774
Chronic Absenteeism	310	78	1	8	1.802	1.227
Change in Status	153	62	1	19	1.866	2.387
GT and Advanced Courses	121	41	1	8	2.017	1.568
Suspensions YoY	114	28	1	9	1.839	1.462
Matched Cohort	101	31	1	8	2.061	1.830
Discipline	93	36	1	8	2.583	1.779
Discipline Equity	87	27	1	8	1.776	1.388
Suspended Students	77	35	1	8	2.200	1.712
Aggregate School	58	34	1	6	1.526	1.059
Supportive Environment	46	14	1	8	3.286	2.268
Correlations	37	17	1	4	1.321	0.670
Most Suspended Students	37	20	1	3	1.194	0.543
Suspension Table	34	14	1	4	1.545	1.011
What is On Track?	34	21	1	4	1.214	0.630
Absent Students	25	9	1	10	2.778	2.906
Report usage	17	1	1	11	3.400	4.336
Climbers and Sliders	10	7	1	3	1.429	0.787
Referrals By Teacher	9	6	1	3	1.500	0.837
Usage Report	9	1	1	4	1.800	1.304
Suspensions	8	5	1	3	1.600	0.894
Log Entries	6	4	1	2	1.500	0.577
MS Pass Rates	4	2	1	3	2.000	1.414
ES Pass Ratings	2	2	1	1	1.000	0.000
Incident Type	2	2	1	1	1.000	0.000
Report performance	2	1	2	2	2.000	--
All Pages	5603	145	1	49	3.273	4.883

Online Supplement A3

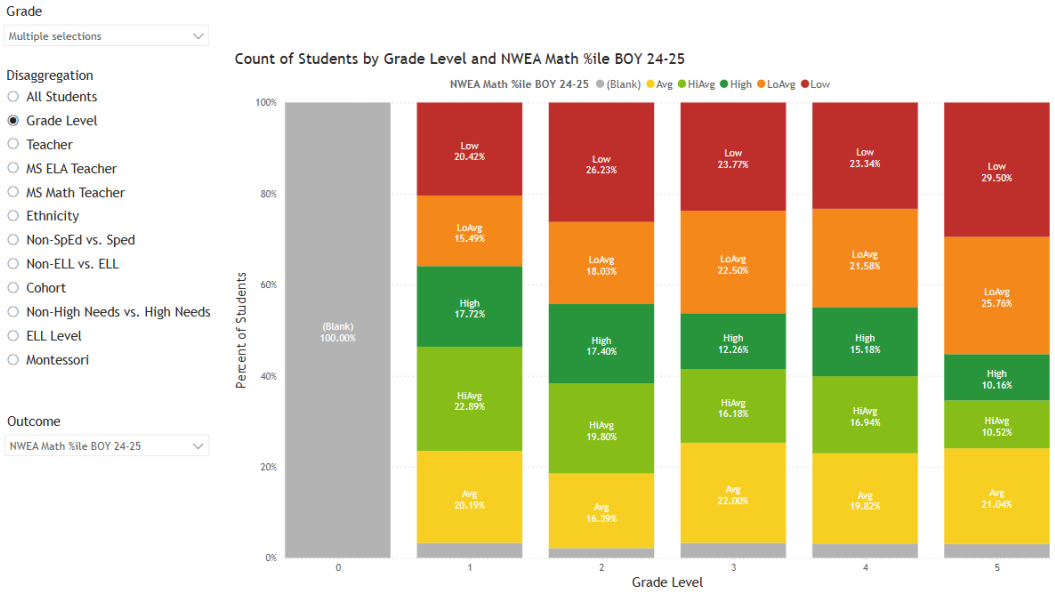
Run Chart of Suspension Incidents

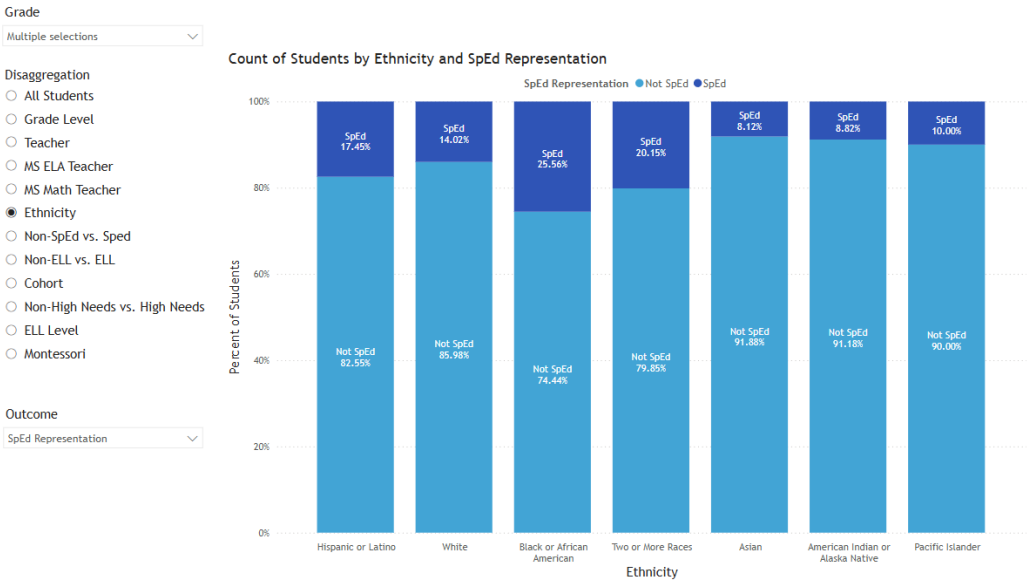


Note: This dashboard allowed principals to monitor progress and assess needs based on common incident types.

Online Supplement A4

Examples of the Custom Charts Page

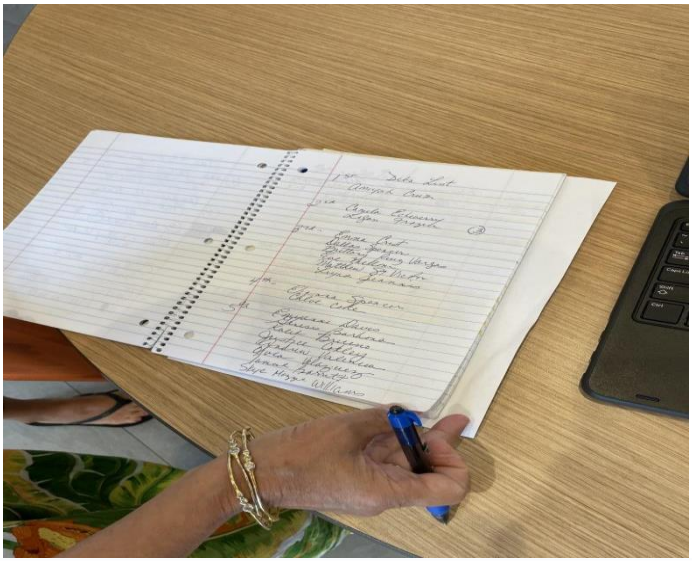




Note: The custom charts page has a flexible x-axis and legend, allowing principals to select the field parameters they want represented. In the above examples, one principal selected their recent NWEA MAP achievement percentile for the legend and grade level for their x-axis grouping. In the other example, a principal selected their special education representation for the legend and race/ethnicity for the x-axis grouping.

Online Supplement A5

Lists Created by Instructional Coaches for Principals



=ROUND(M2-((K2/2)*H2))

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
Last Name	First Name	Teacher	Grade	Ethnicity	HIgh Needs (Y/I	Assessment	BOY RIT	BOY %	Projected Growt	Growth Goal	Growth Goal Sc	MOY RIT	MOY %	On Track to Me	EOY RIT	EOY %	Met Goal
[redacted]			1	Hispanic	Y	Mathematics	154	36	39	54.6	209			-181			
			2	Hispanic	Y	Mathematics	153	6	16	22.4	175			-164			
			1	Hispanic	Y	Mathematics	163	64	29	31.9	195			-179			
			1	Hispanic	Y	Mathematics	157	45	25	31.25	188			-173			
			2	Hispanic	Y	Mathematics	179	66	13	14.3	193			-186			
			3	Black	Y	Mathematics	204	89	11	12.1	216			-210			
			3	Black	Y	Mathematics	201	84	11	12.1	213			-207			
			2	Hispanic	Y	Mathematics	170	39	14	19.6	190			-180			
			5	Hispanic	Y	Mathematics	224	85	9	9.9	234			-229			
			1	Black	Y	Mathematics	140	7	24	33.6	174			-157			
			2	Hispanic	Y	Mathematics	151	4	16	22.4	173			-162			
			4	White	Y	Mathematics	211	80	10	11	222			-217			
			2	Hispanic	Y	Mathematics	177	60	14	17.5	195			-186			
			5	Black	Y	Mathematics	221	80	9	9.9	231			-226			
			1	Black	Y	Mathematics	142	9	28	39.2	181			-162			
			1	Black	Y	Mathematics	170	82	44	48.4	218			-194			
			5	Hispanic	Y	Mathematics	220	78	9	9.9	230			-225			
			5	Black	Y	Mathematics	218	74	9	9.9	228			-223			
			3	Hispanic	Y	Mathematics	197	76	11	12.1	209			-203			
			3	Black	Y	Mathematics	197	76	11	12.1	209			-203			
			1	Black	Y	Mathematics	153	33	24	33.6	187			-170			
			1	Hispanic	Y	Mathematics	171	84	32	35.2	206			-189			
			4	Hispanic	Y	Mathematics	207	72	10	11	218			-213			
			2	Hispanic	Y	Mathematics	159	13	16	22.4	181			-170			
			2	Black	Y	Mathematics	163	21	15	21	184			-174			
			4	Hispanic	Y	Mathematics	207	72	10	11	218			-213			
			1	Hispanic	Y	Mathematics	170	82	29	31.9	202			-186			
			4	Multi-Racial	Y	Mathematics	205	67	10	11	216			-211			
			4	Black	Y	Mathematics	205	67	10	11	216			-2			
			5	Hispanic	Y	Mathematics	215	67	9	9.9	225			-2			

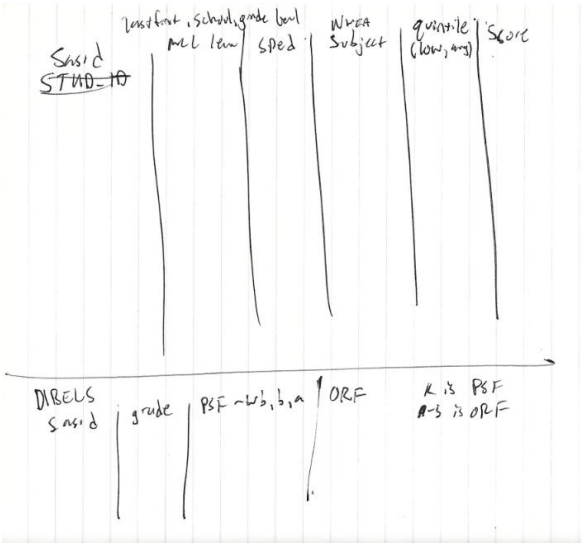
Convert to dropdown chips

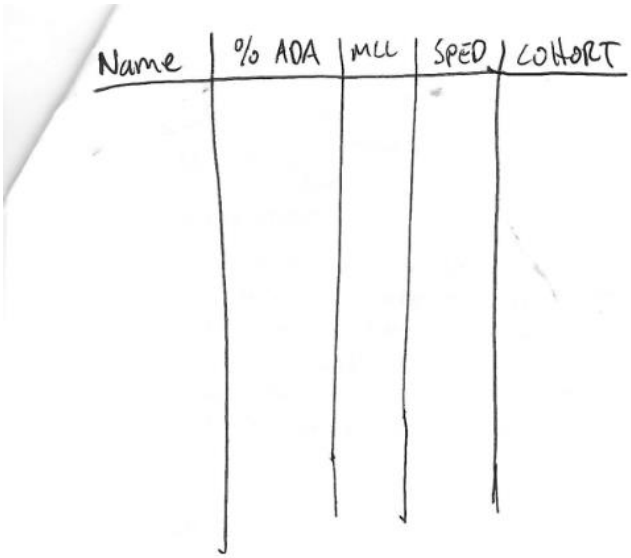
Math | HIGH NEEDS MATH | ELA | Grade 2 ELA | HIGH NEEDS ELA

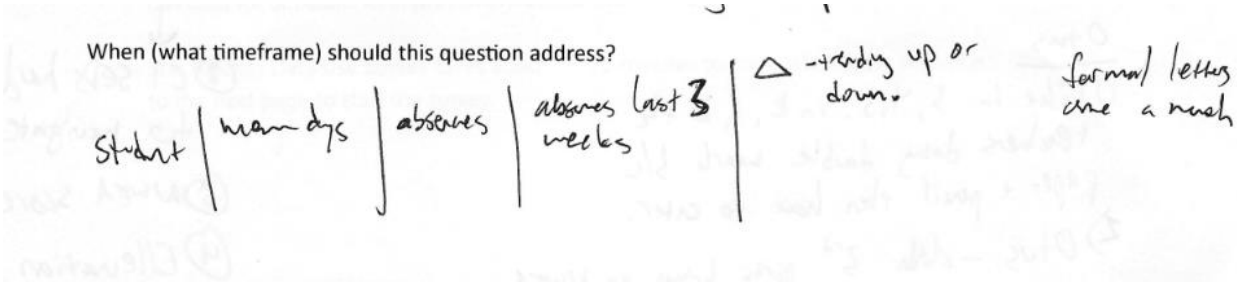
Note: Practitioners felt comfortable acting upon data formatted as a table or list of students. Their data challenge was joining various data points into this table.

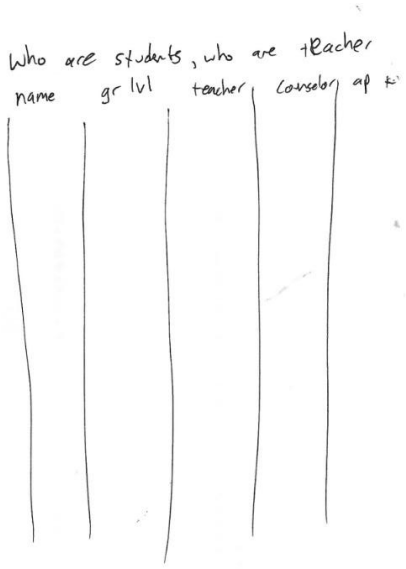
Online Supplement A6

Examples of Illustrations from Collaborative Conversations with Educators









Note: Many principals independently raised how they wanted their data visualized in a tabular format.

Online Supplement A7

Data Wall Page Final Display