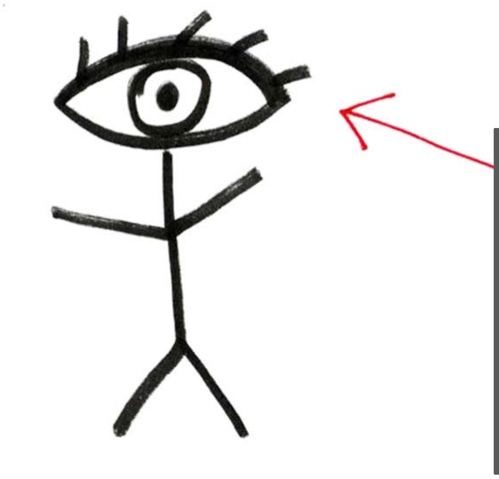
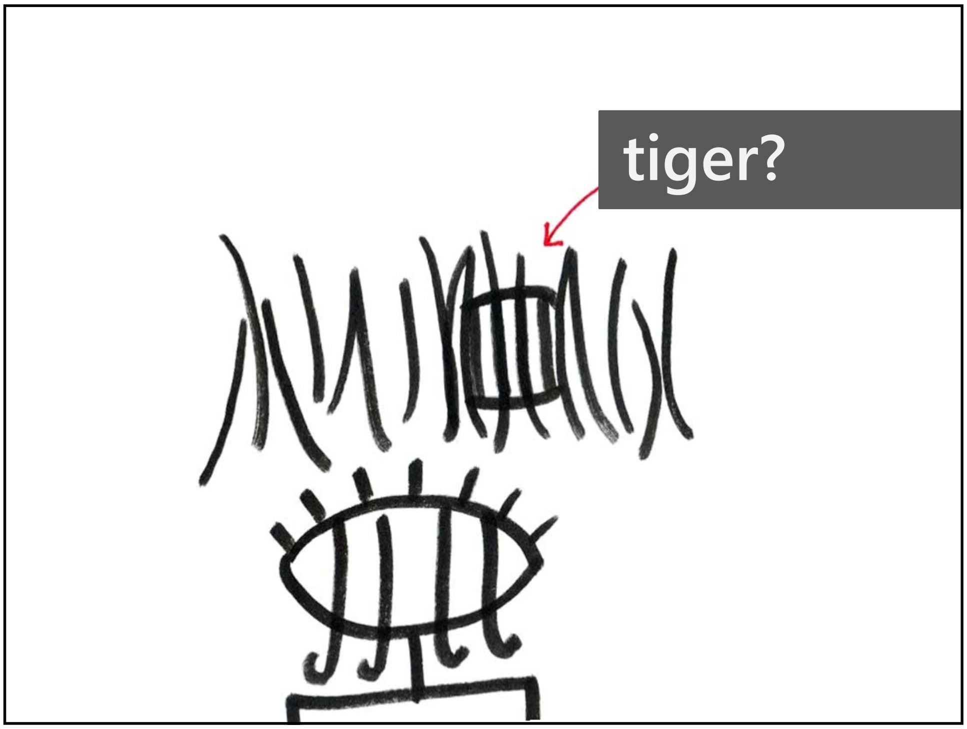
Smart
Data
Visualization

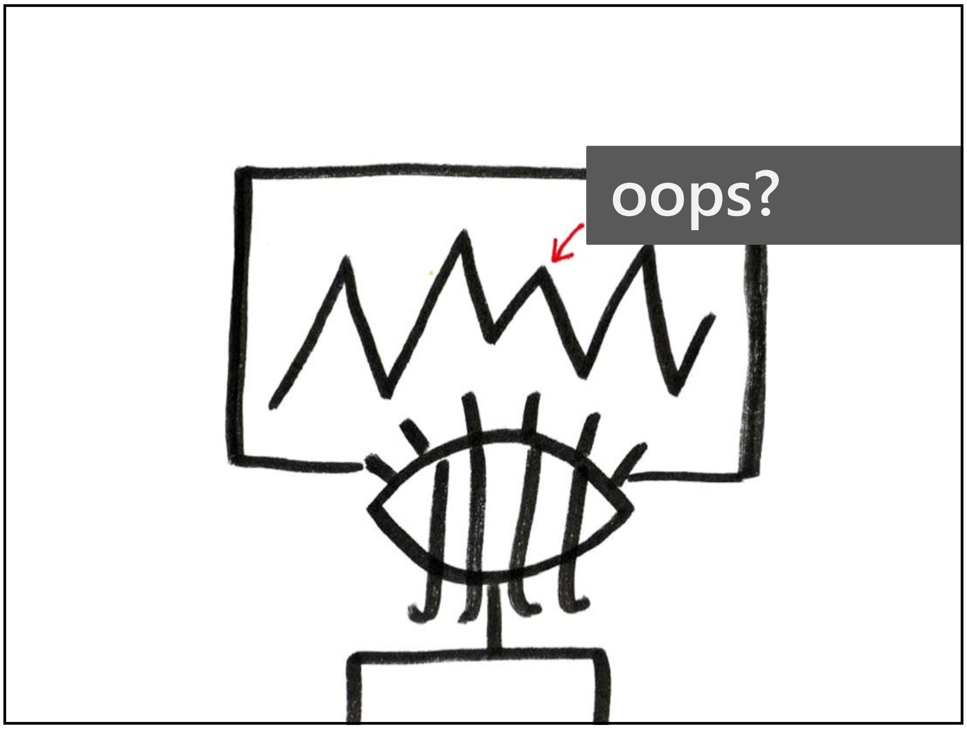
Stephanie Evergreen
stephanieevergreen.com/blog
twitter.com/evalu8r



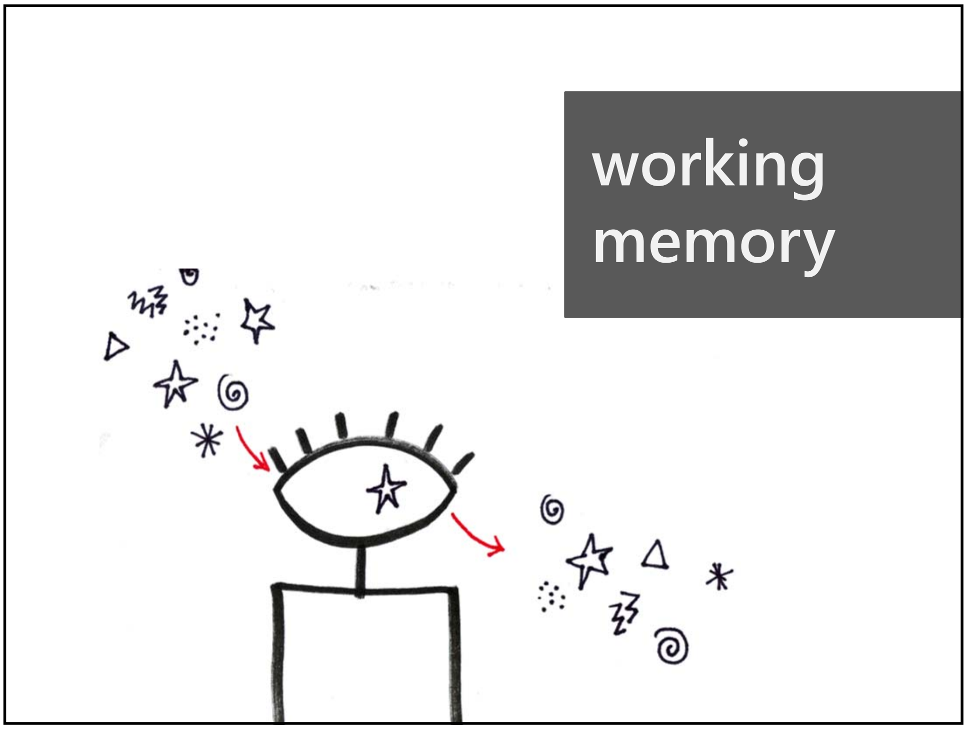
Pictorial Superiority Effect



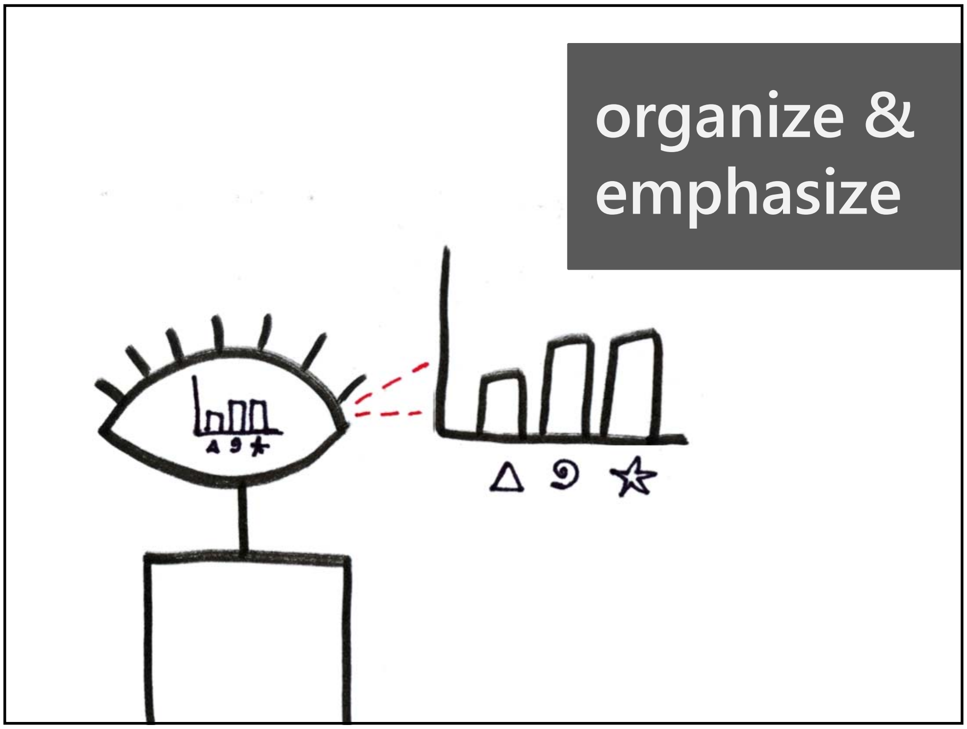
tiger?



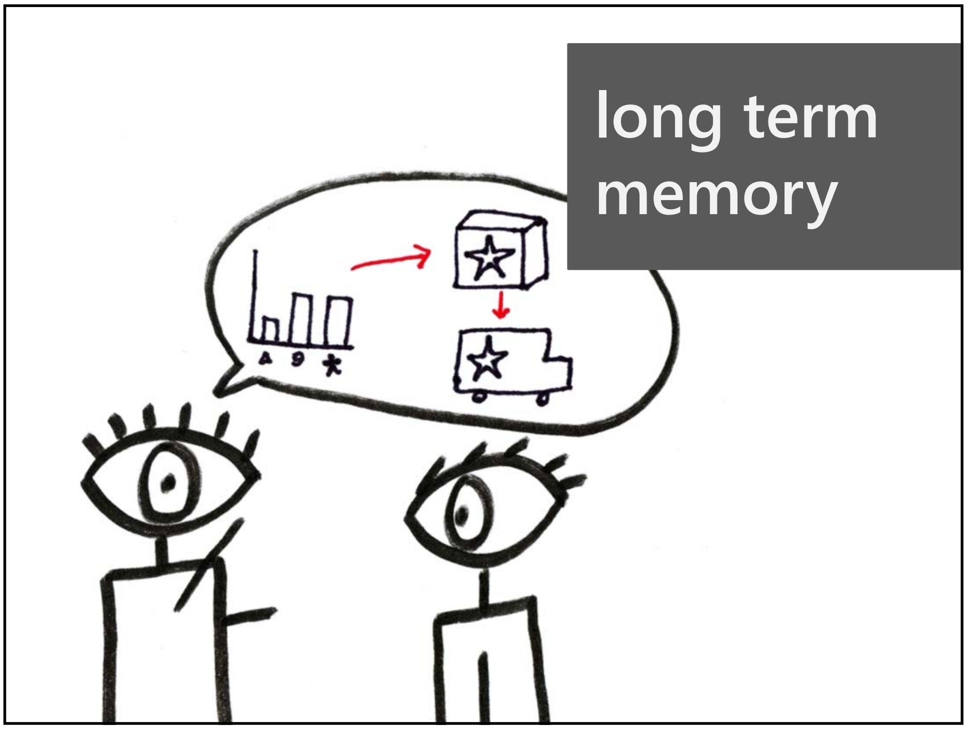
oops?



working memory

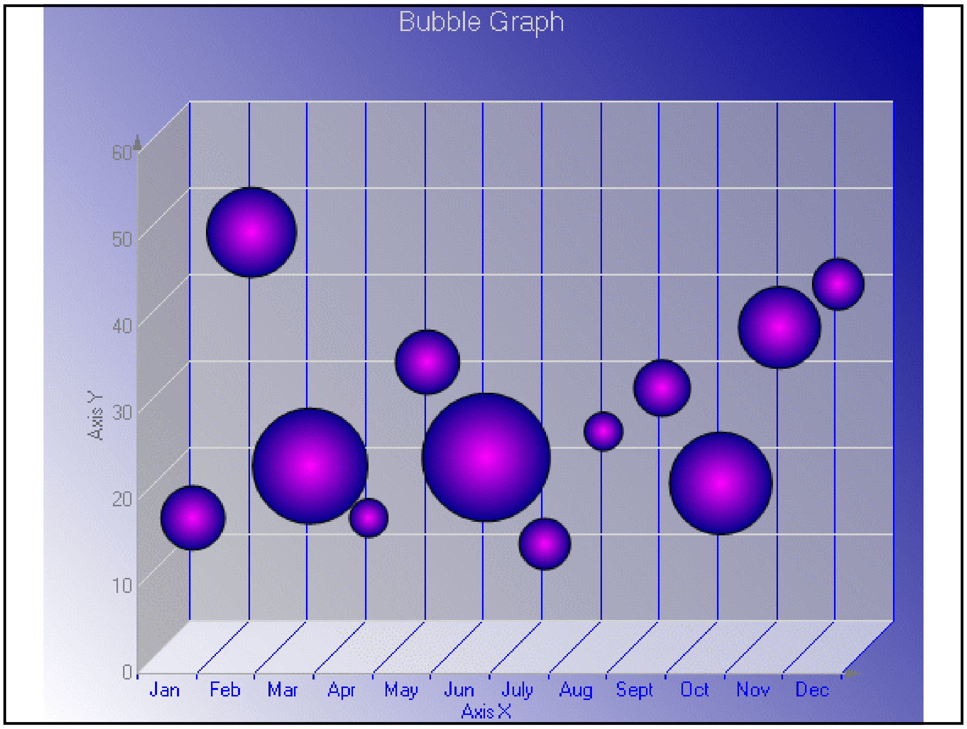


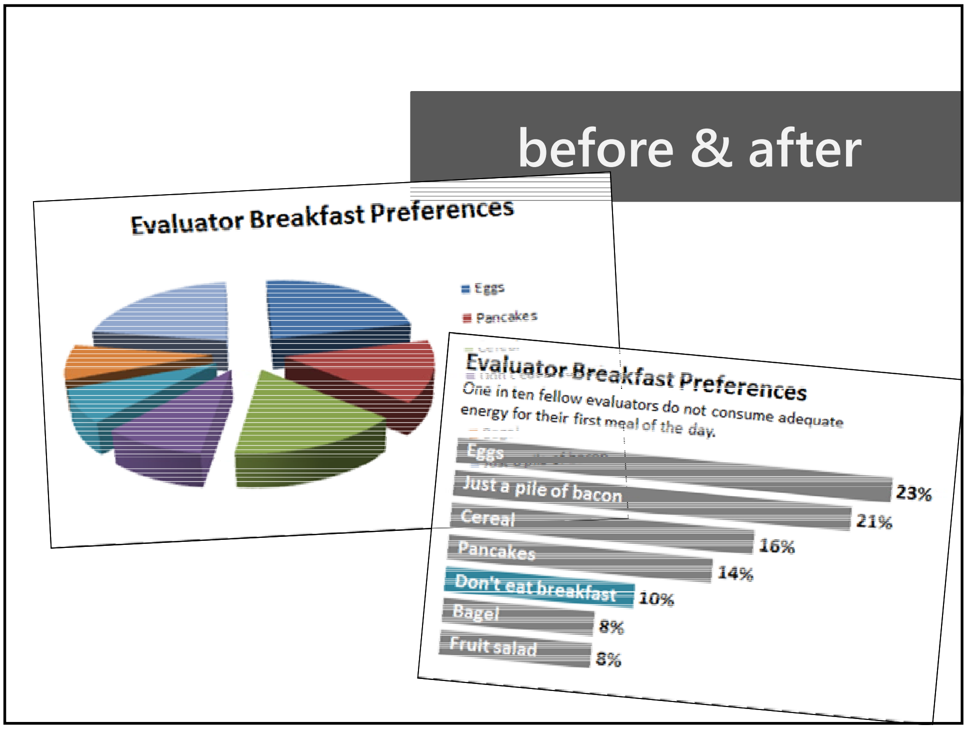
organize & emphasize



long term memory

Simplify & Emphasize





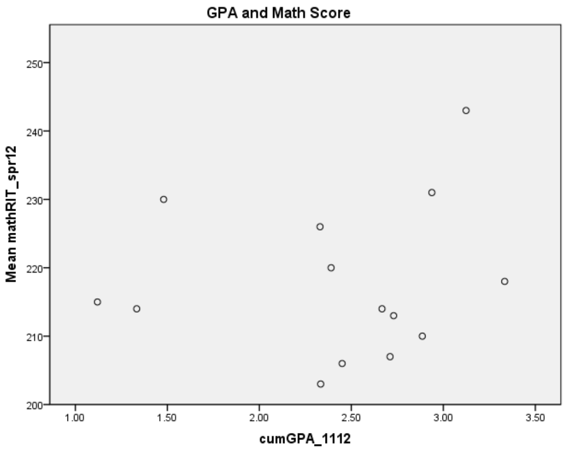
before & after

Evaluator Breakfast Preferences

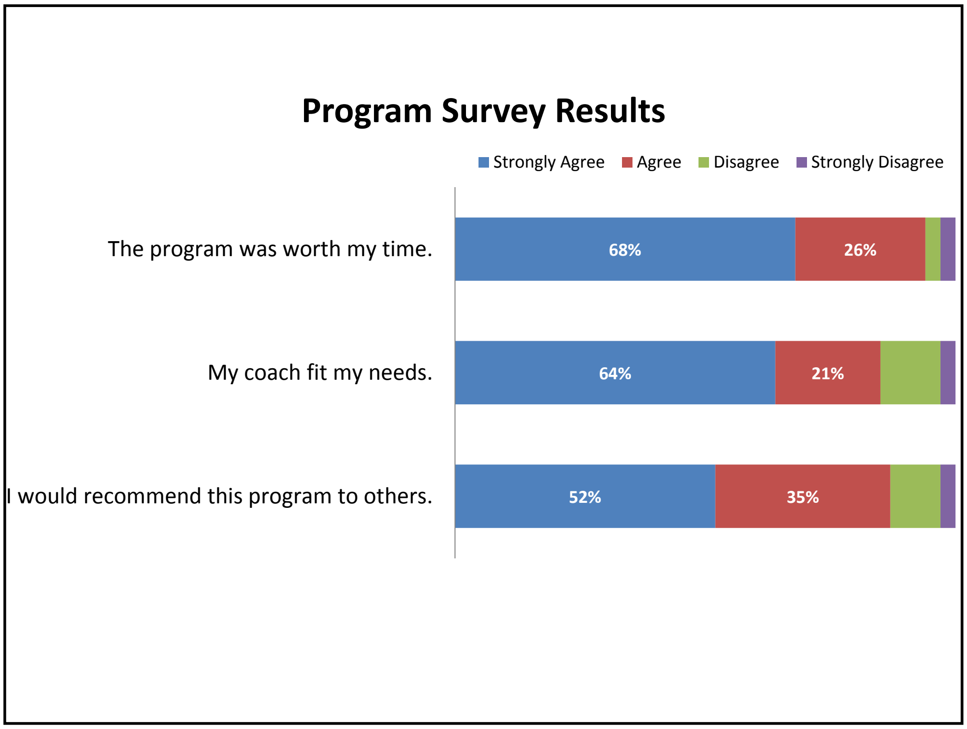
Evaluator Breakfast Preferences

One in ten fellow evaluators do not consume adequate energy for their first meal of the day.

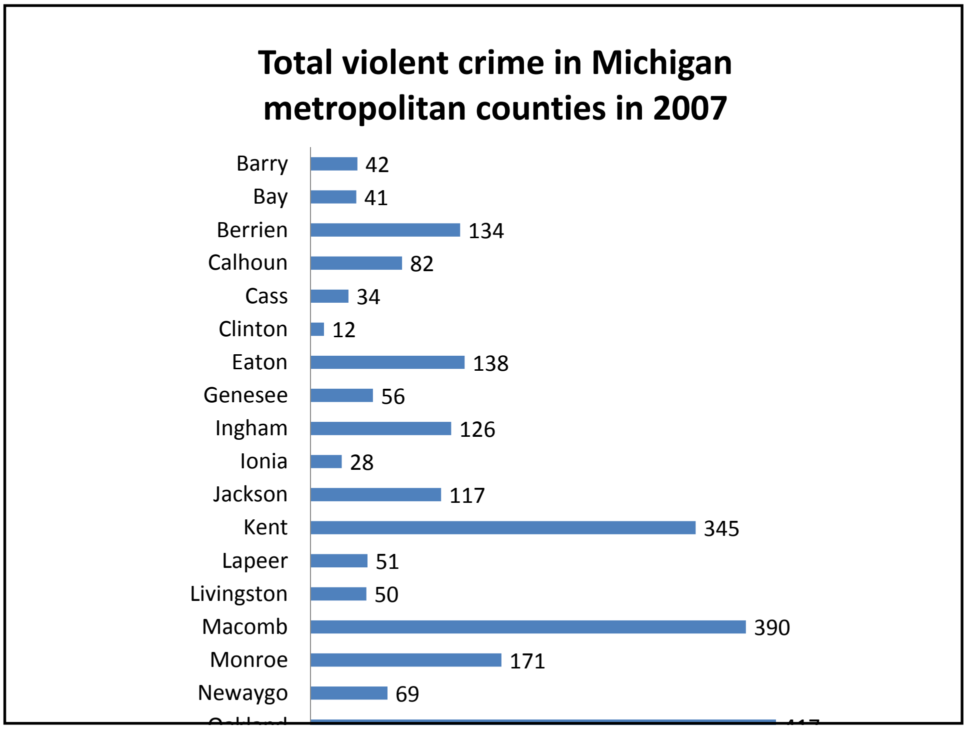
don’t


GPA and Math Score
Mean mathRIT_spr12
250
240
230
220
210
200
1.00
1.50
2.00
2.50
3.00
3.50
cumGPA_1112

Order

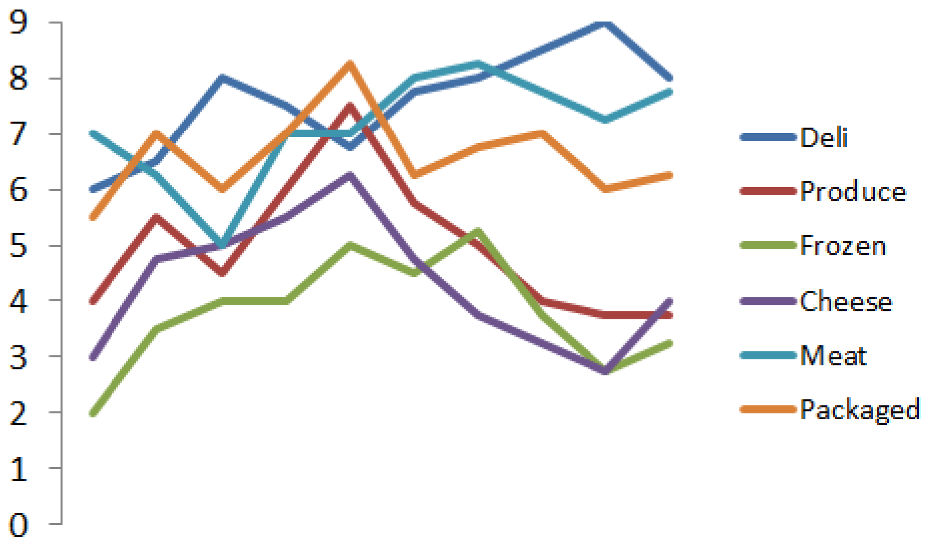


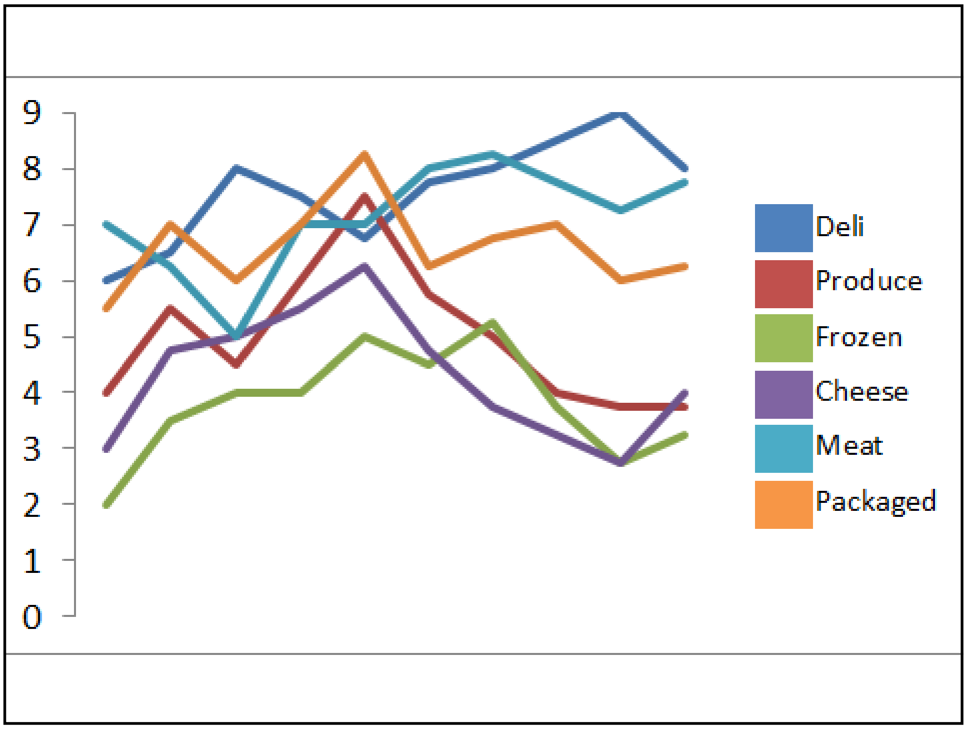
Program Survey Results

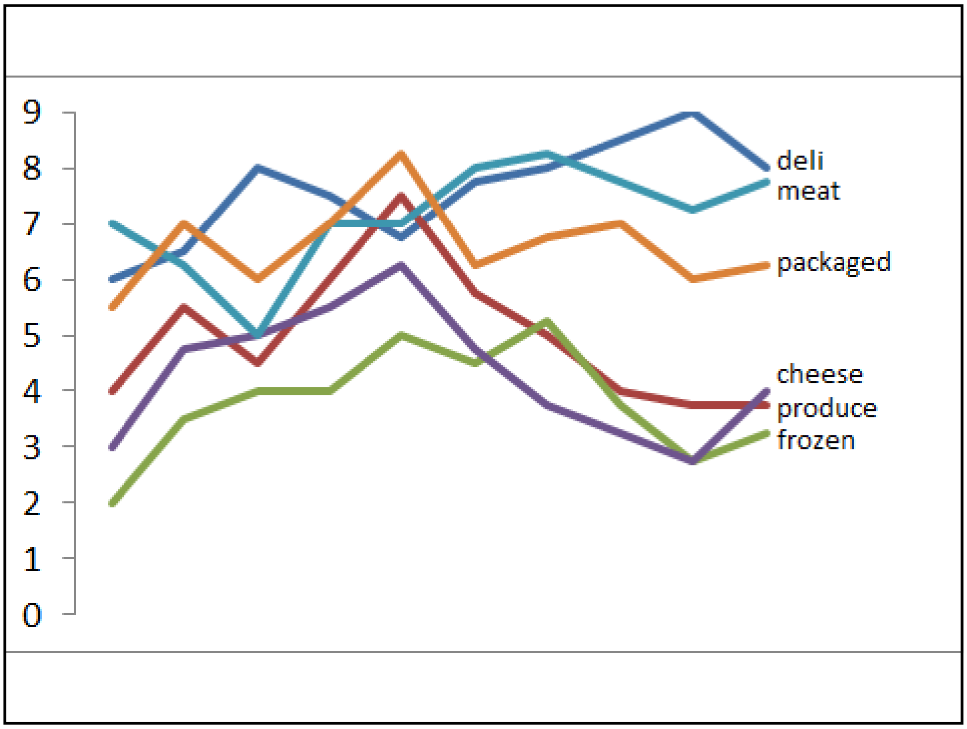


Total violent crime in Michigan metropolitan counties in 2007

Legend & Label




9
8
7
6
5
4
3
2
1
0
Deli
Produce
Frozen
Cheese
Meat
Packaged


9
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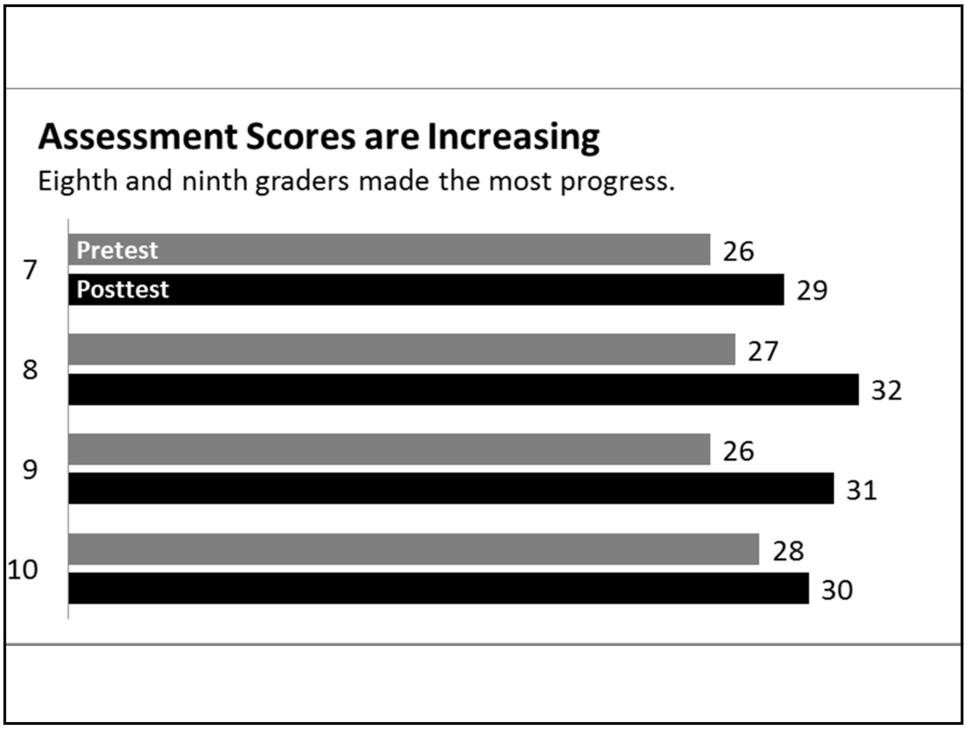
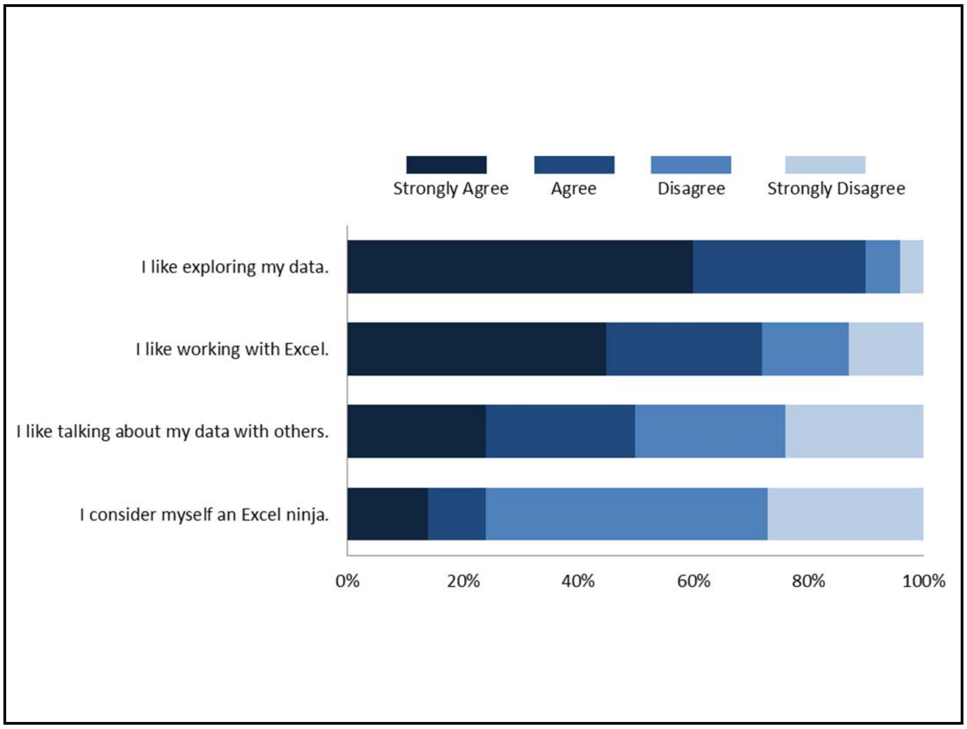
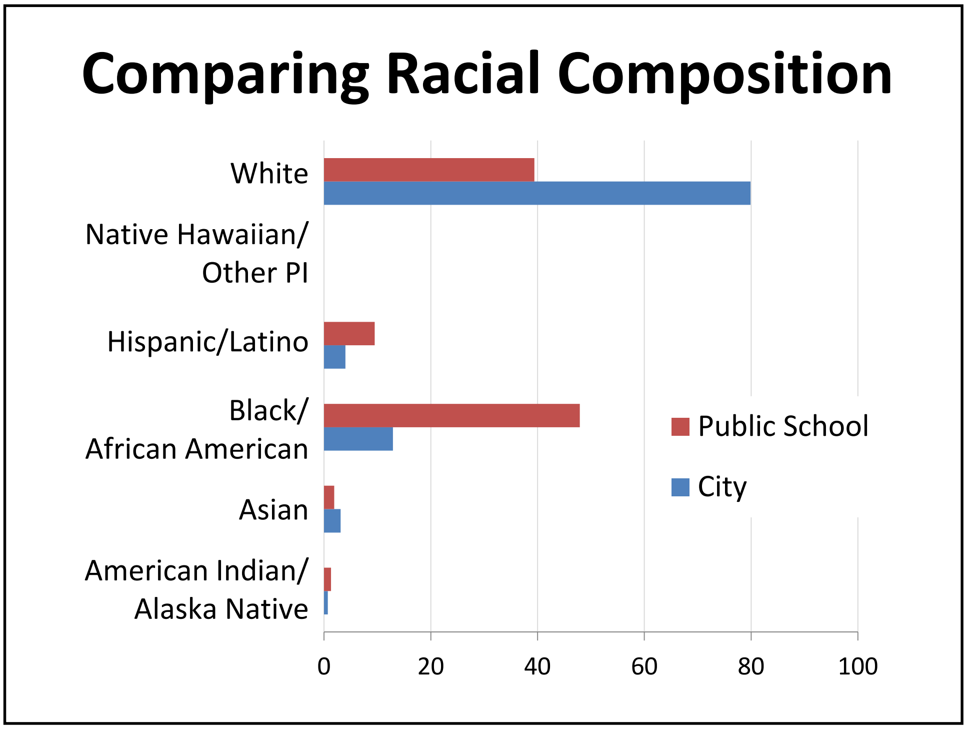
packaged
cheese
produce
frozen



Assessment Scores are Increasing

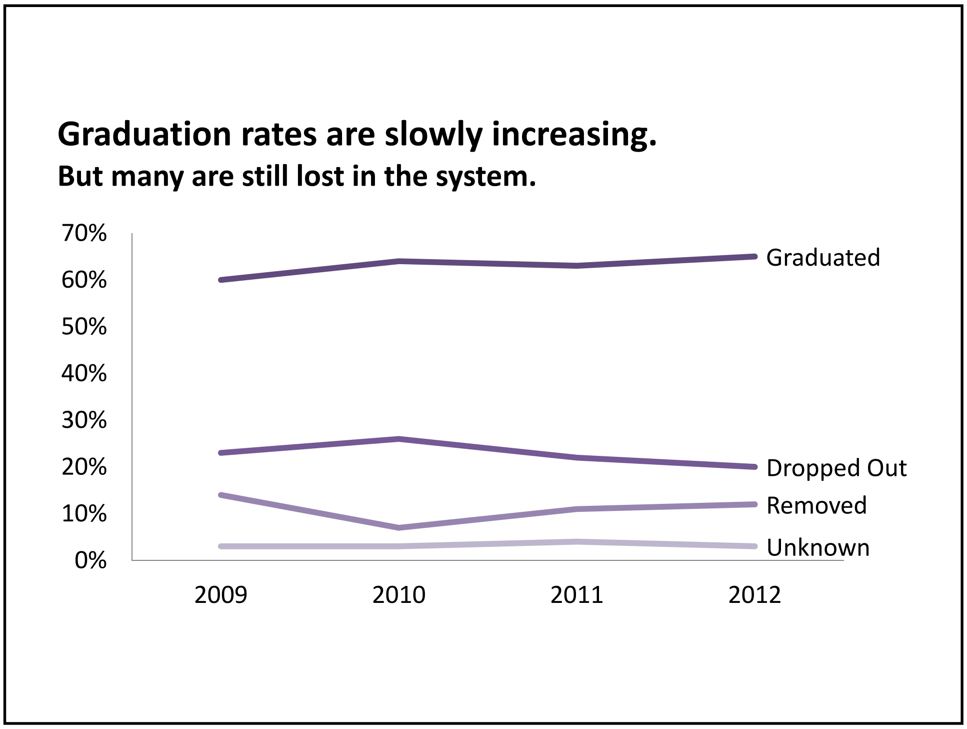
Eighth and ninth graders made the most progress.





Comparing Racial Composition

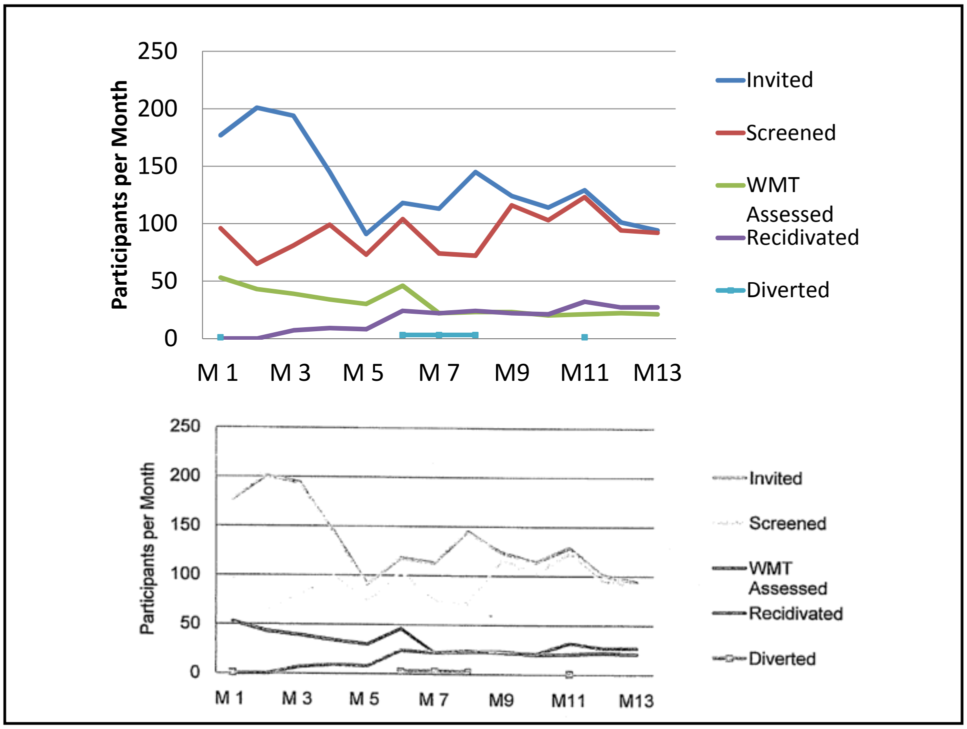
Text

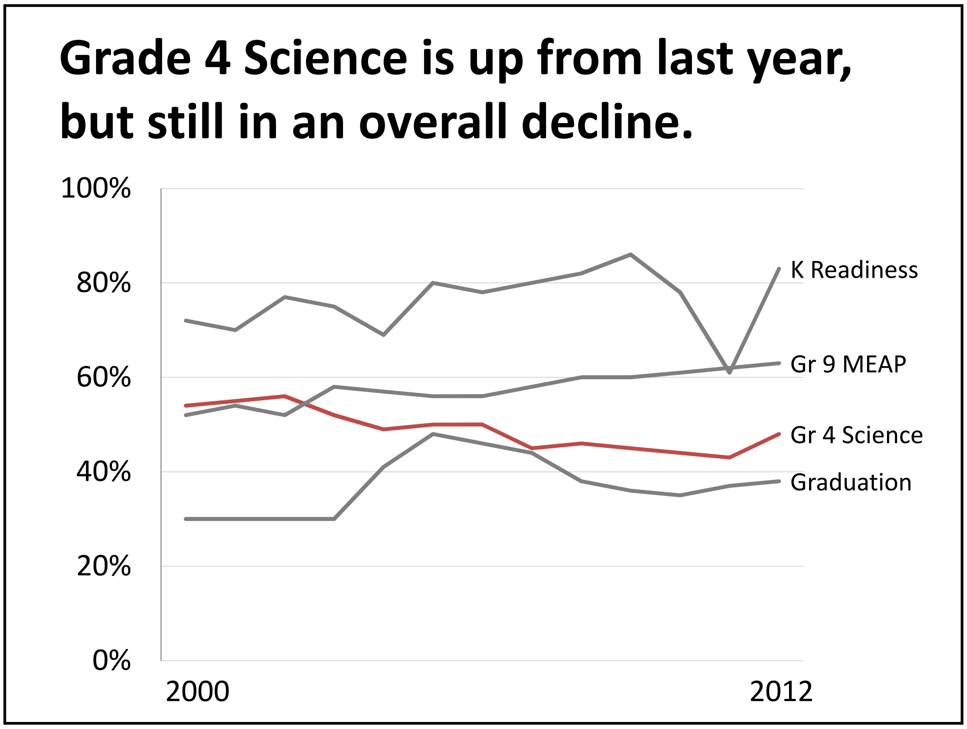


Graduation rates are slowly increasing.

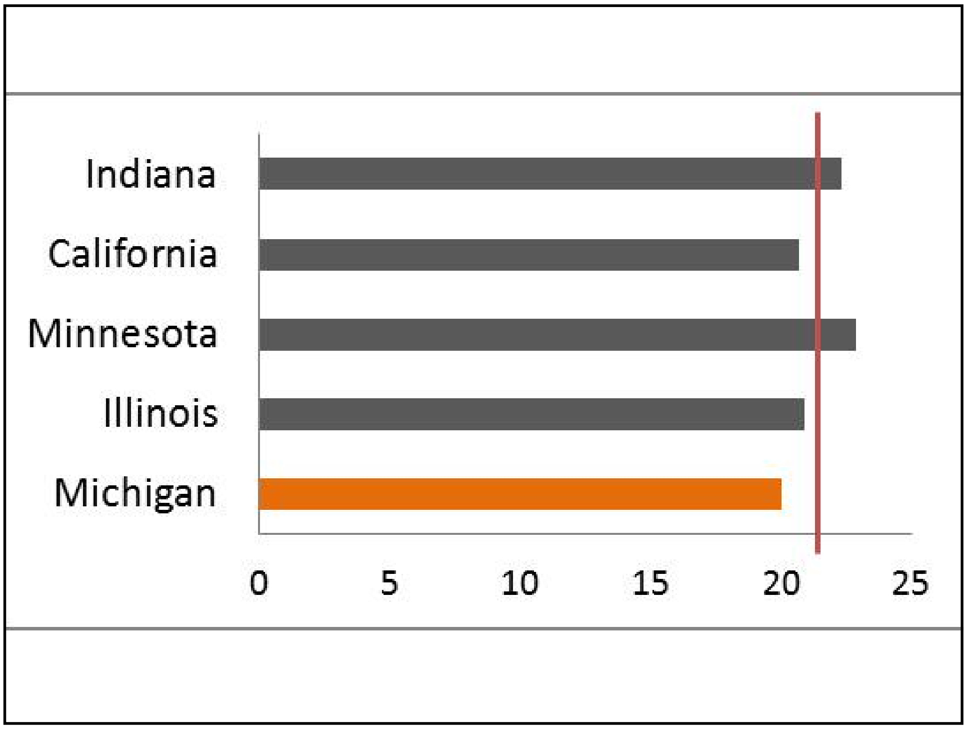
But many are still lost in the system.

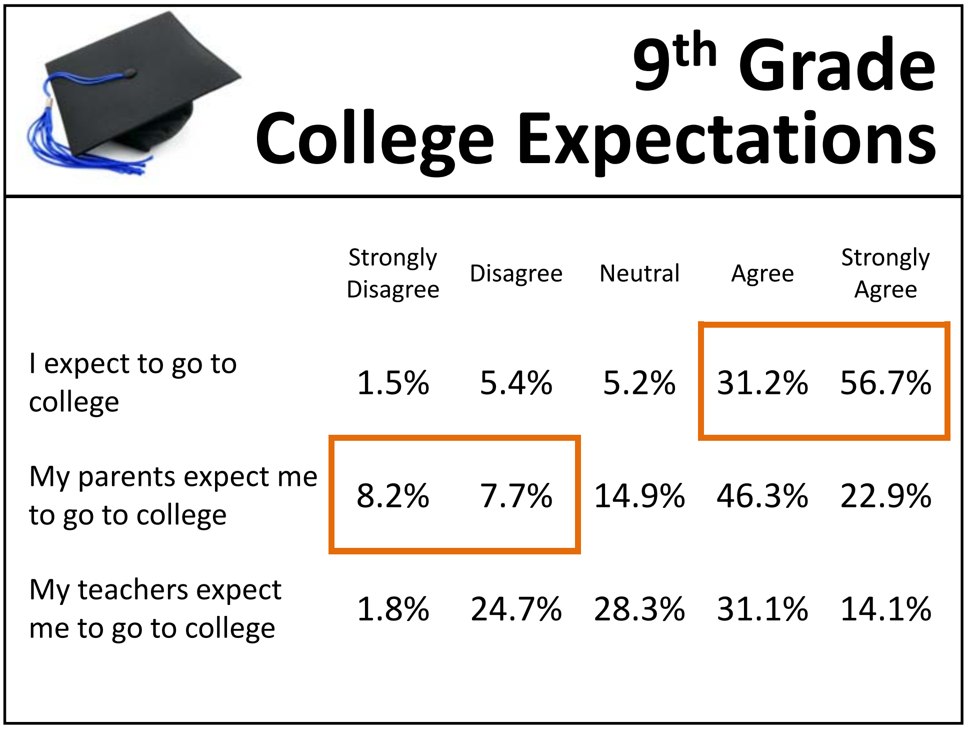
Color





Grade 4 Science is up from last year, but still in an overall decline.





9th Grade College Expectations

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I expect to go to college	1.5%	5.4%	5.2%	31.2%	56.7%
My parents expect me to go to college	8.2%	7.7%	14.9%	46.3%	22.9%
My teachers expect me to go to college	1.8%	24.7%	28.3%	31.1%	14.1%

In 2011

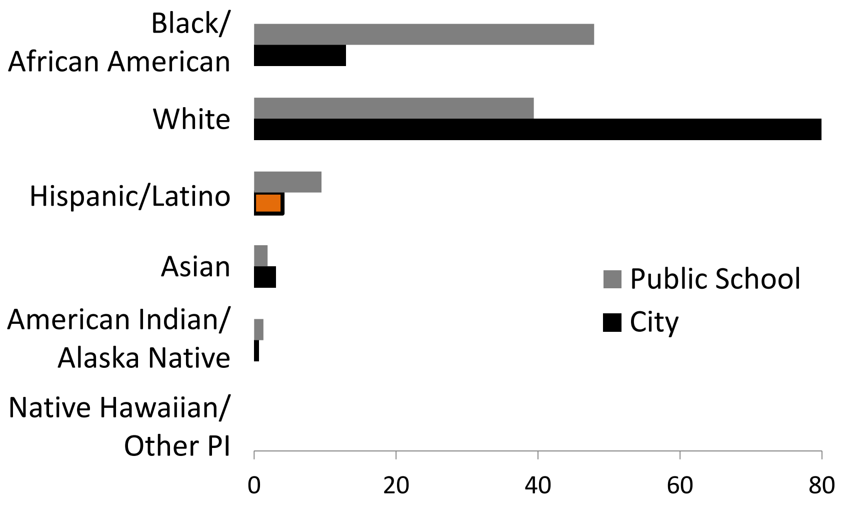
9th grade expectations to attend college

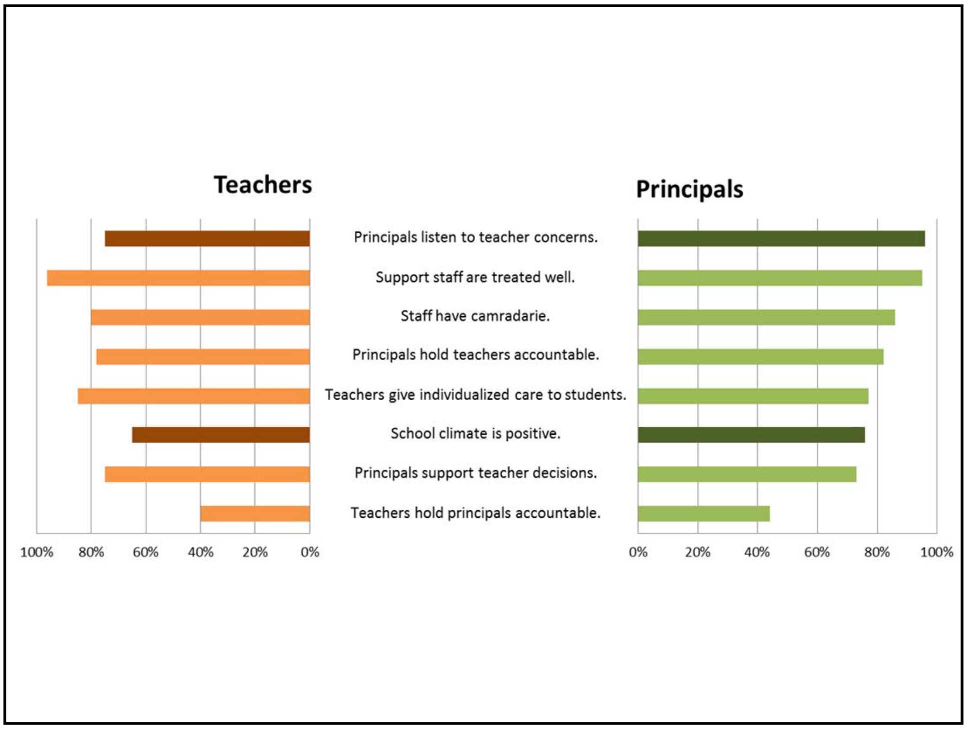
rose by

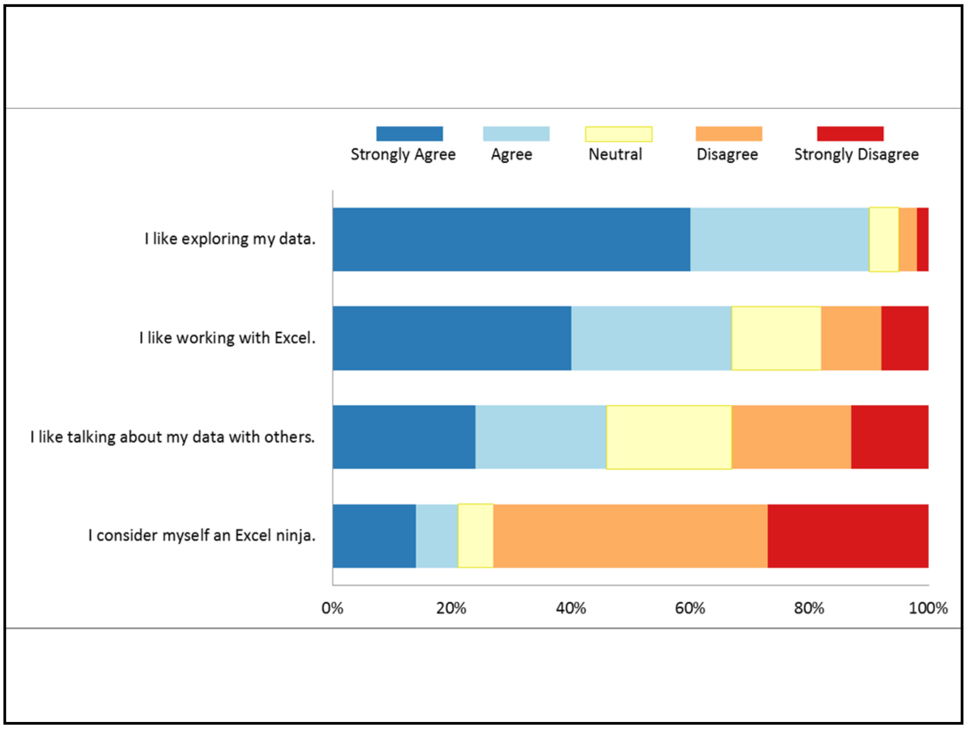
8%

Comparing Racial Composition

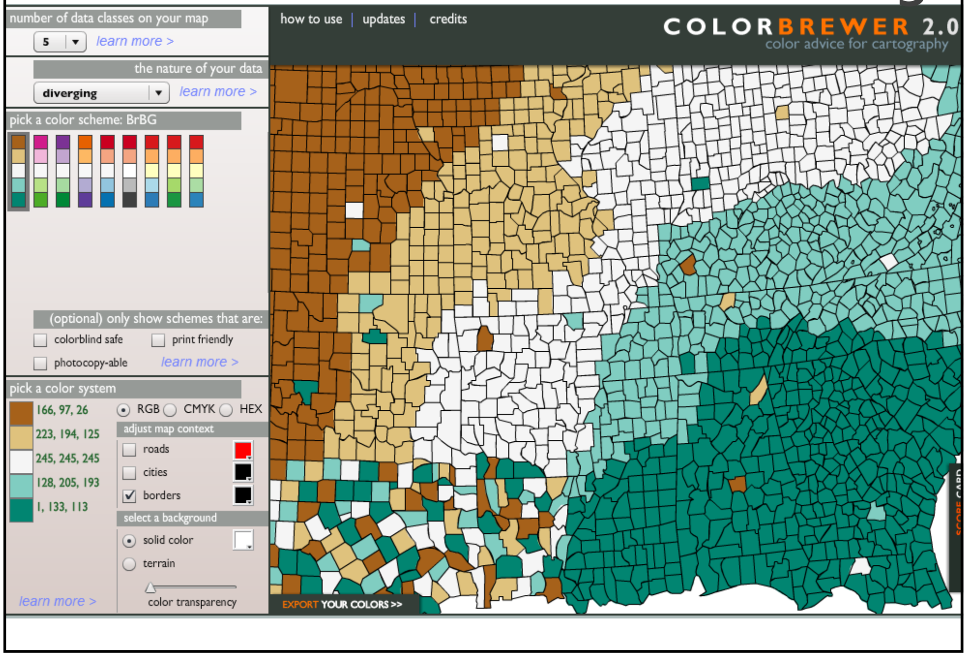
The composition of the public schools does not reflect the racial makeup of the metropolitan city in which the schools are located.




Teachers
Principals
Principals listen to teacher concerns.
Support staff are treated well.
Staff have camradarie.
Principals hold teachers accountable.
Teachers give individualized care to students.
School climate is positive.
Principals support teacher decisions.
Teachers hold principals accountable.
100%
80%
60%
40%
20%
0%
0%
20%
40%
60%
80%
100%


Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree
I like exploring my data.
I like working with Excel.
I like talking about my data with others.
I consider myself an Excel ninja.
0%
20%
40%
60%
80%
100%

colorbrewer2.org



number of data classes on your map: 5

the nature of your data: diverging

pick a color scheme: BrBG

(optional) only show schemes that are:
☐ colorblind safe ☐ print friendly
☐ photocopy-able

pick a color system: ● RGB ○ CMYK ○ HEX

🟫	166, 97, 26
🟨	223, 194, 125
⬜	245, 245, 245
🟩	128, 205, 193
🟩	1, 133, 113

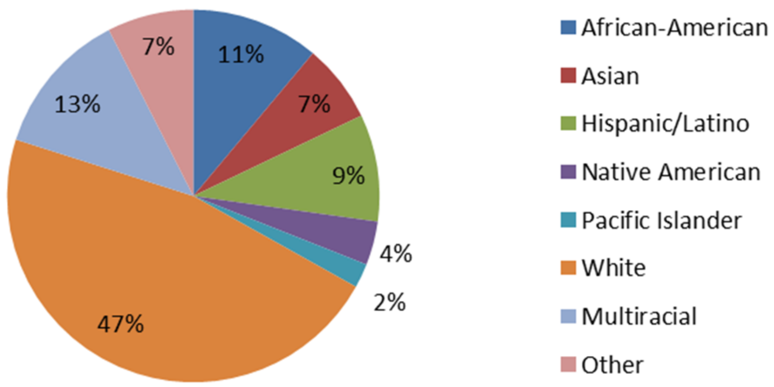
adjust map context:
☐ roads
☐ cities
☑ borders

select a background:
● solid color
○ terrain

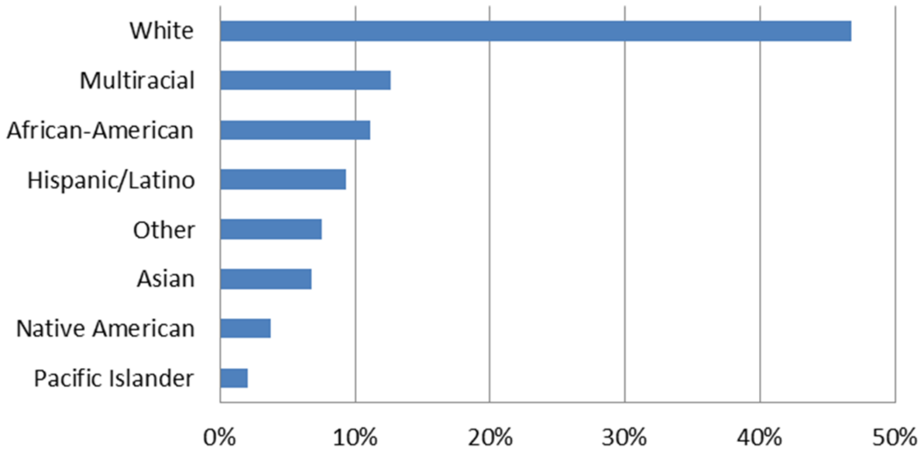
how to use | updates | credits
COLORBREWER 2.0
color advice for cartography
learn more >
color transparency
EXPORT YOUR COLORS >>
SCORE CARD

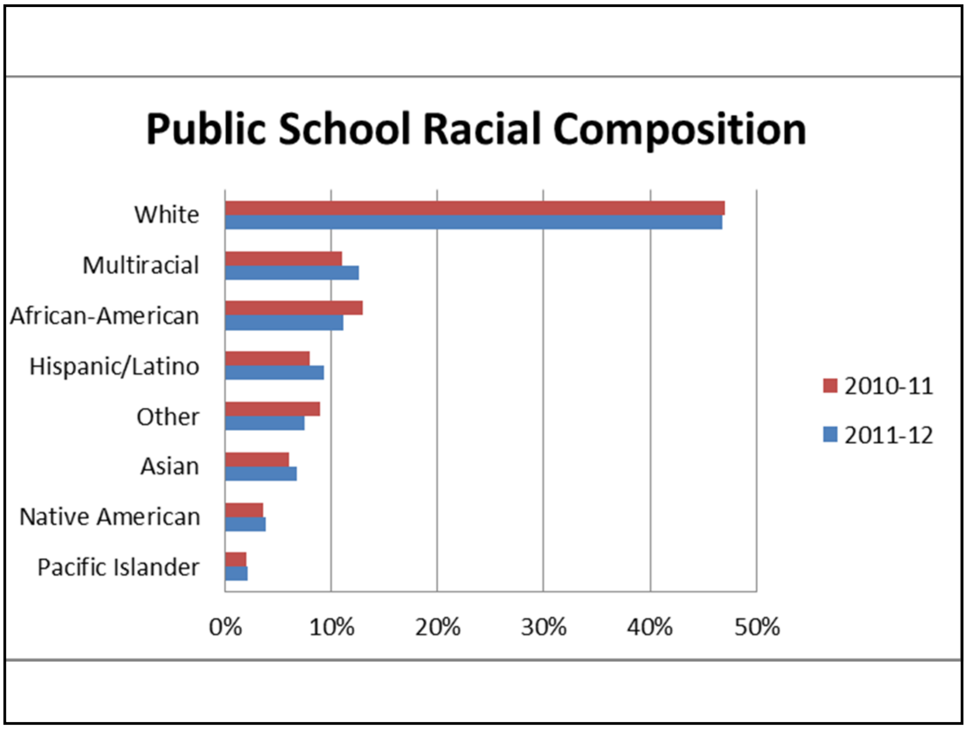
Before & After

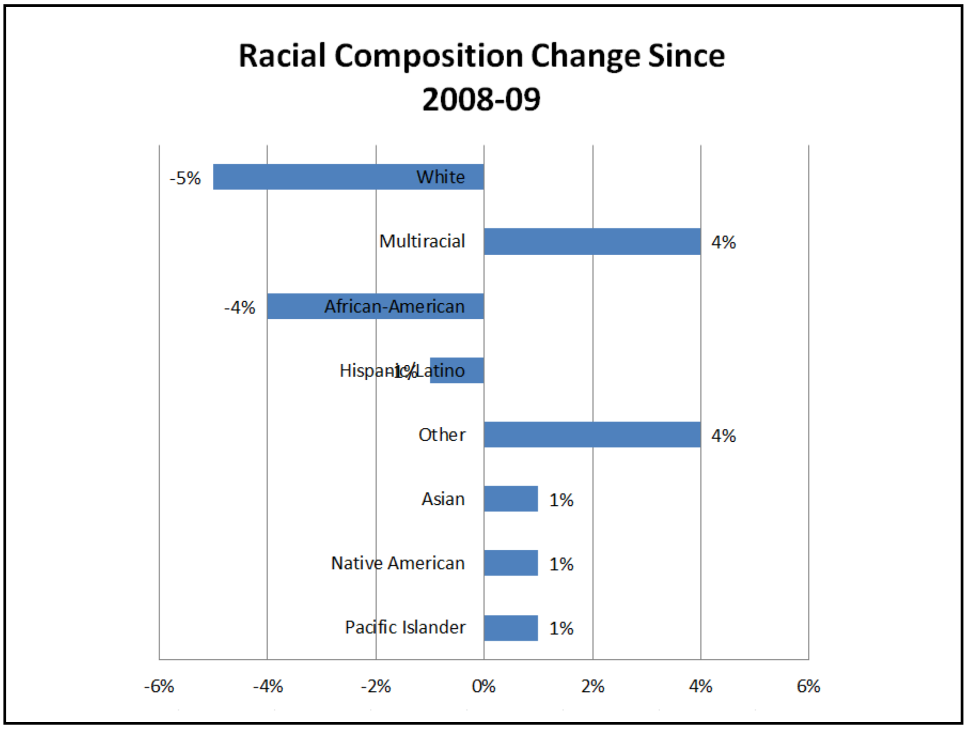
Public School Racial Composition

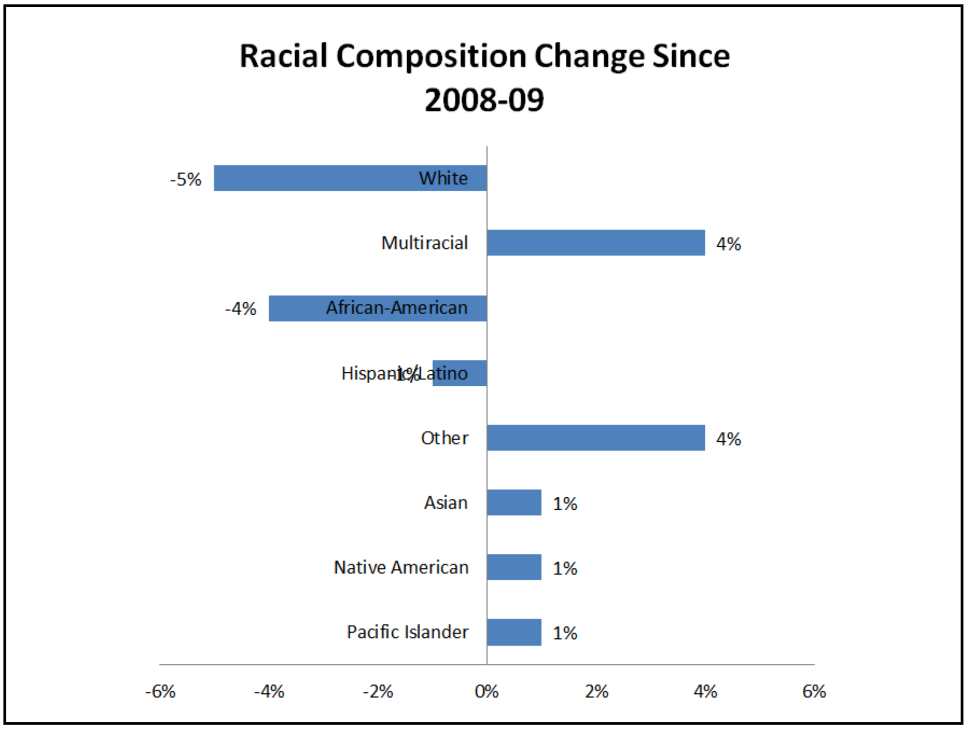


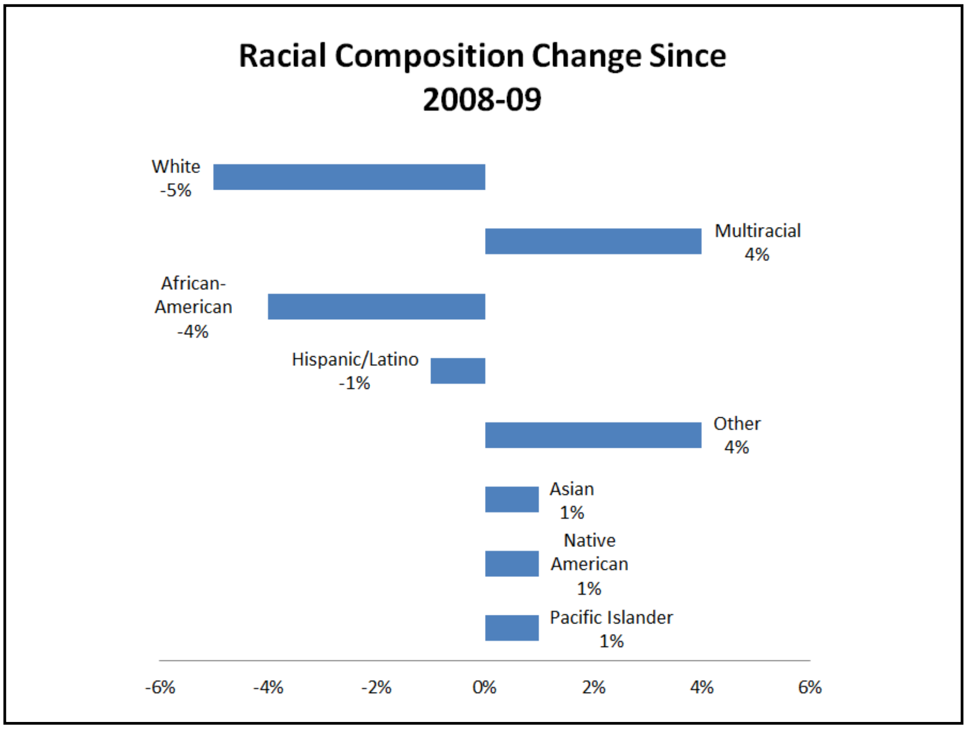
Public School Racial Composition



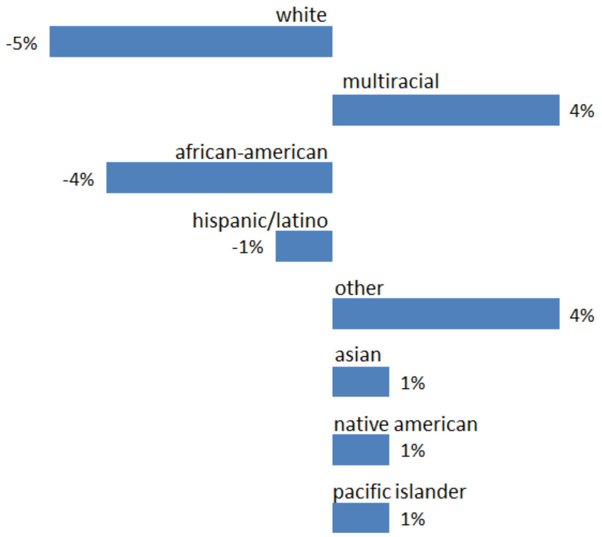

Public School Racial Composition


Racial Composition Change Since 2008-09

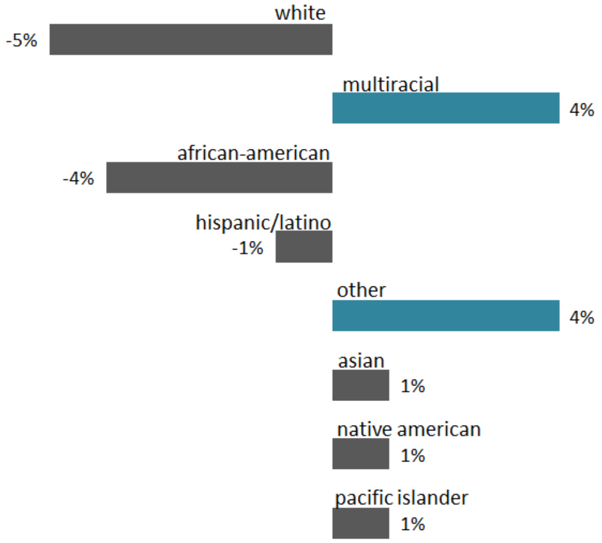

Racial Composition Change Since 2008-09
-5%
White
Multiracial
4%
-4%
African-American
Hispanic/Latino
-1%
Other
4%
Asian
1%
Native American
1%
Pacific Islander
1%
-6%
-4%
-2%
0%
2%
4%
6%


Racial Composition Change Since 2008-09
White
-5%
Multiracial
4%
African-American
-4%
Hispanic/Latino
-1%
Other
4%
Asian
1%
Native American
1%
Pacific Islander
1%
-6%
-4%
-2%
0%
2%
4%
6%

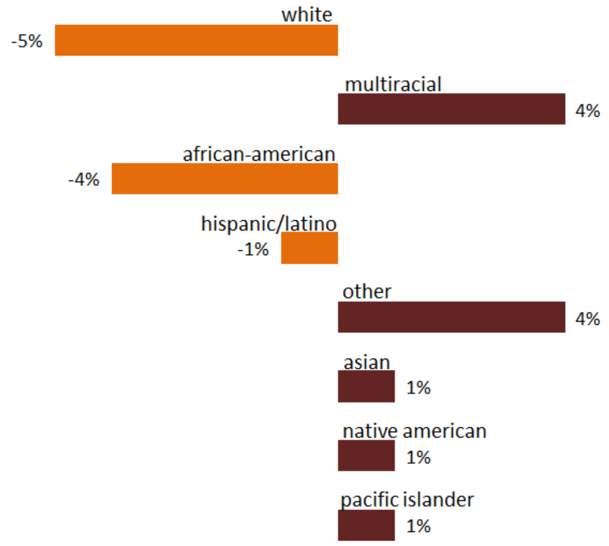
Racial Composition Change Since 2008-09

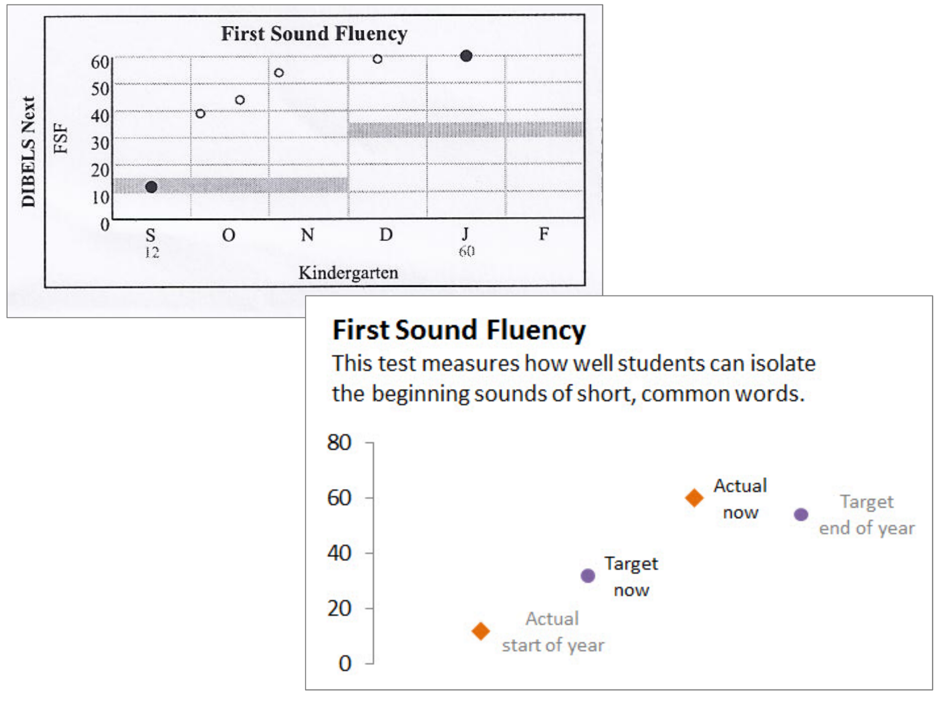


Multiracial and Other categories suggest cultural identity program is working.



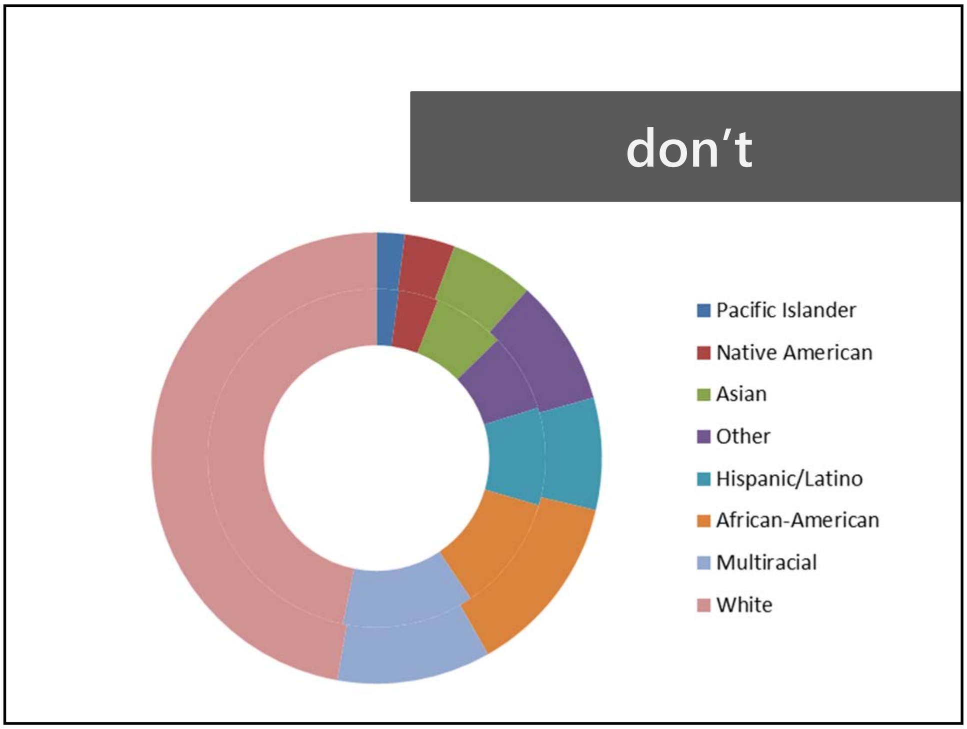
Student composition has grown more diverse since the 2008-09 academic year.





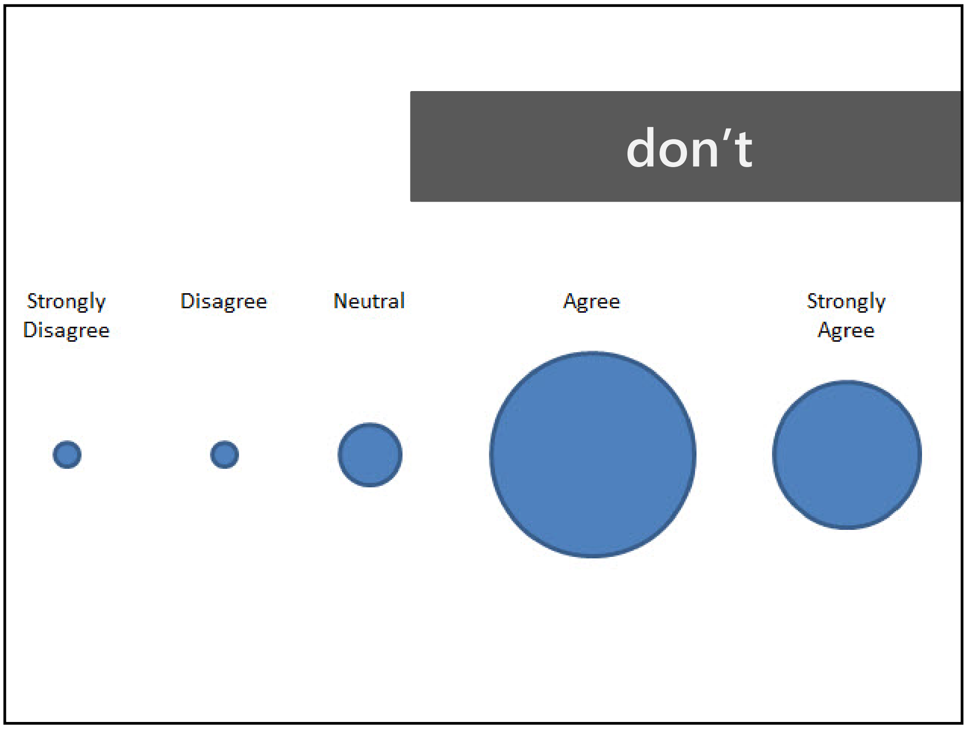
First Sound Fluency

This test measures how well students can isolate the beginning sounds of short, common words.



don't

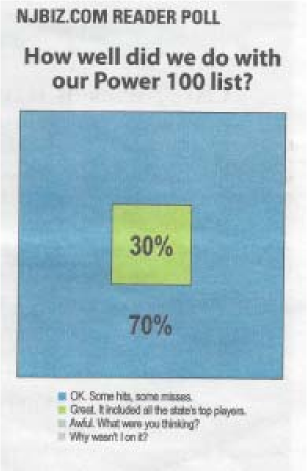
Pacific Islander
Native American
Asian
Other
Hispanic/Latino
African-American
Multiracial
White



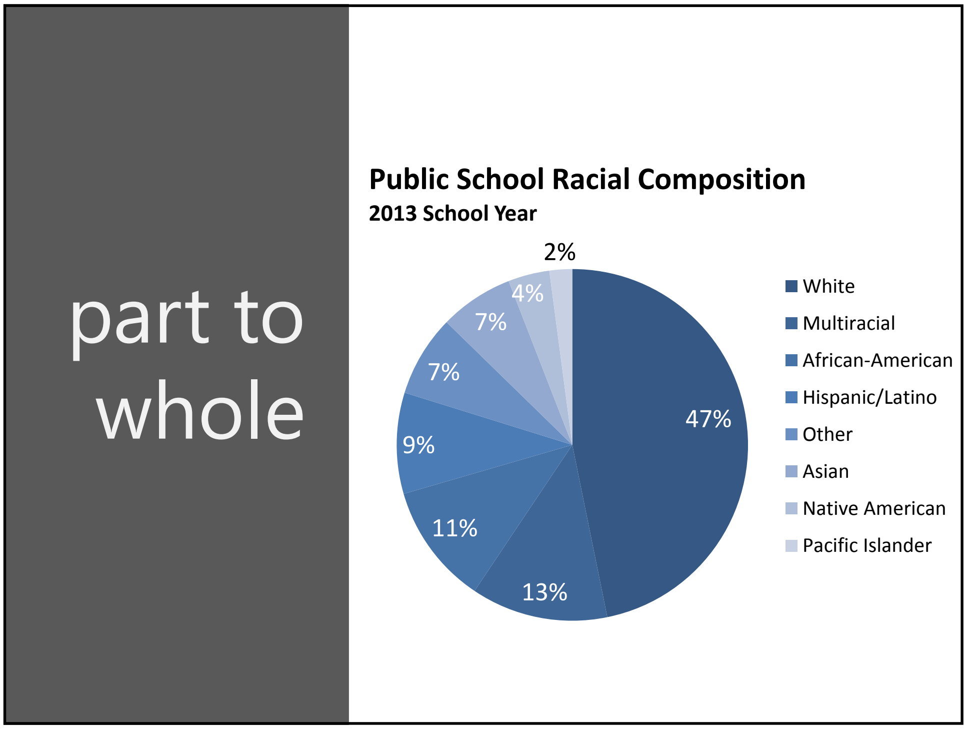
don't

Strongly Disagree
Disagree
Neutral
Agree
Strongly Agree

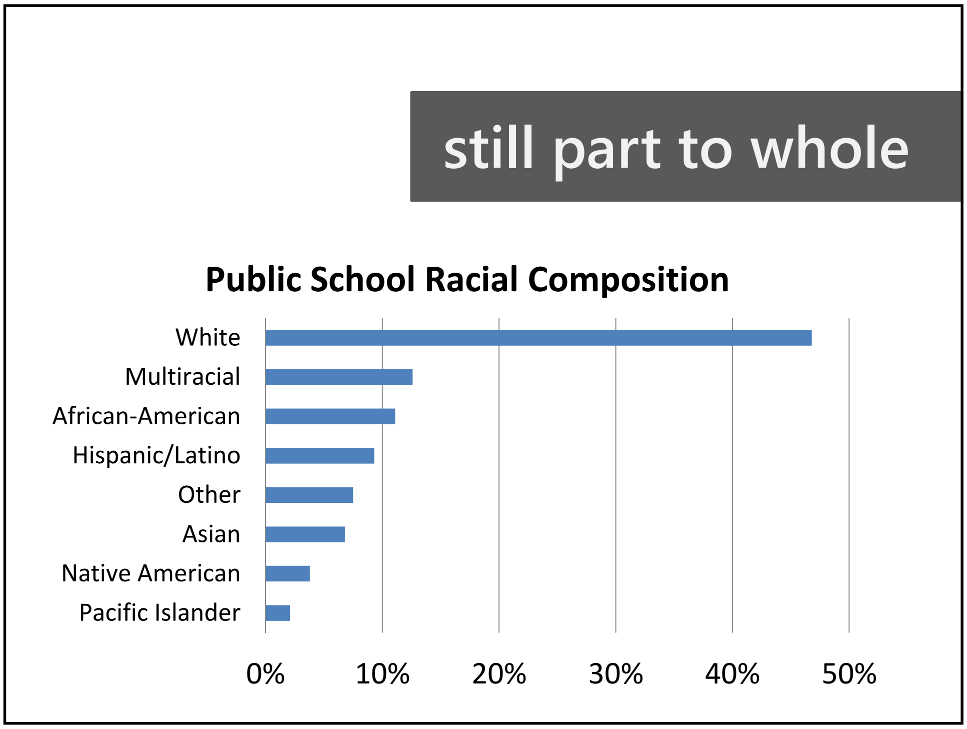
blogs.forbes.com/naomirobbins



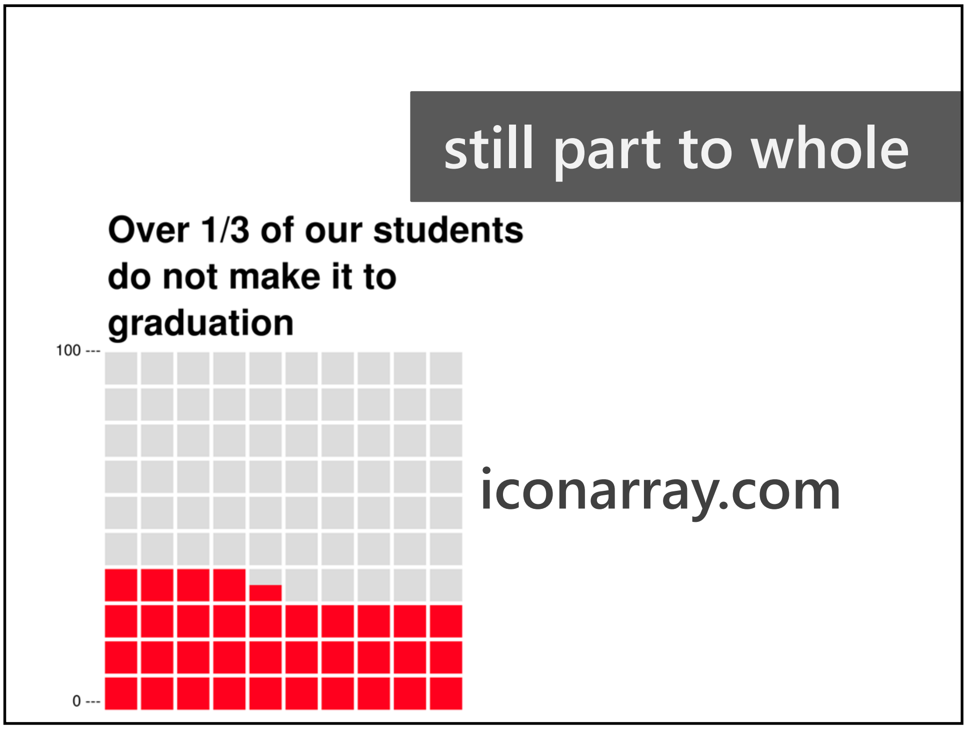
Relationships



part to whole



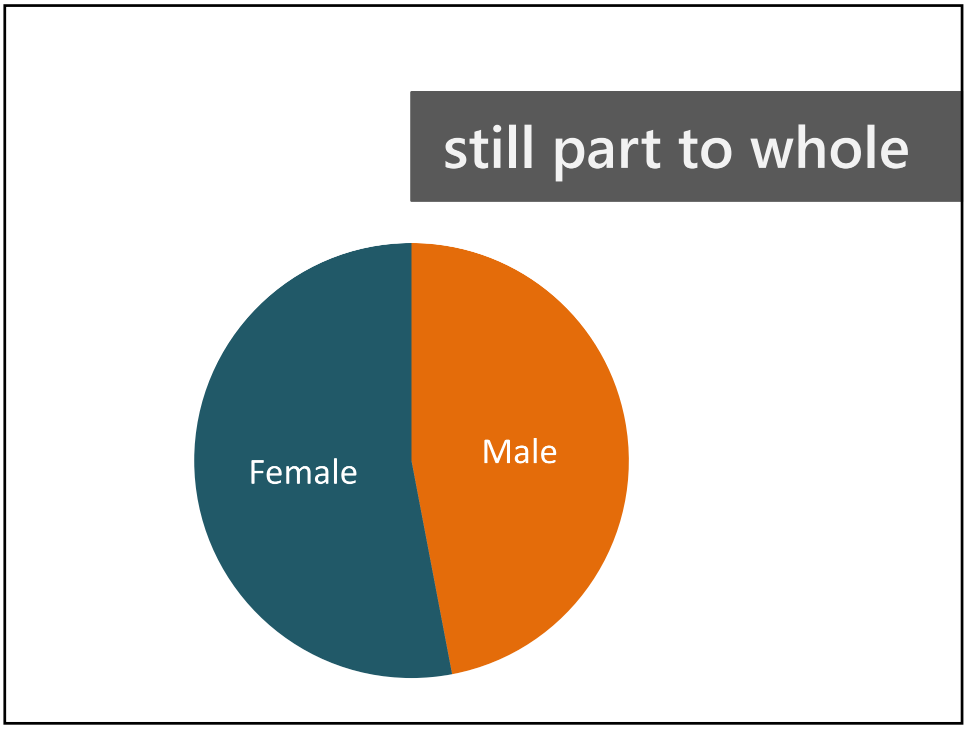
still part to whole



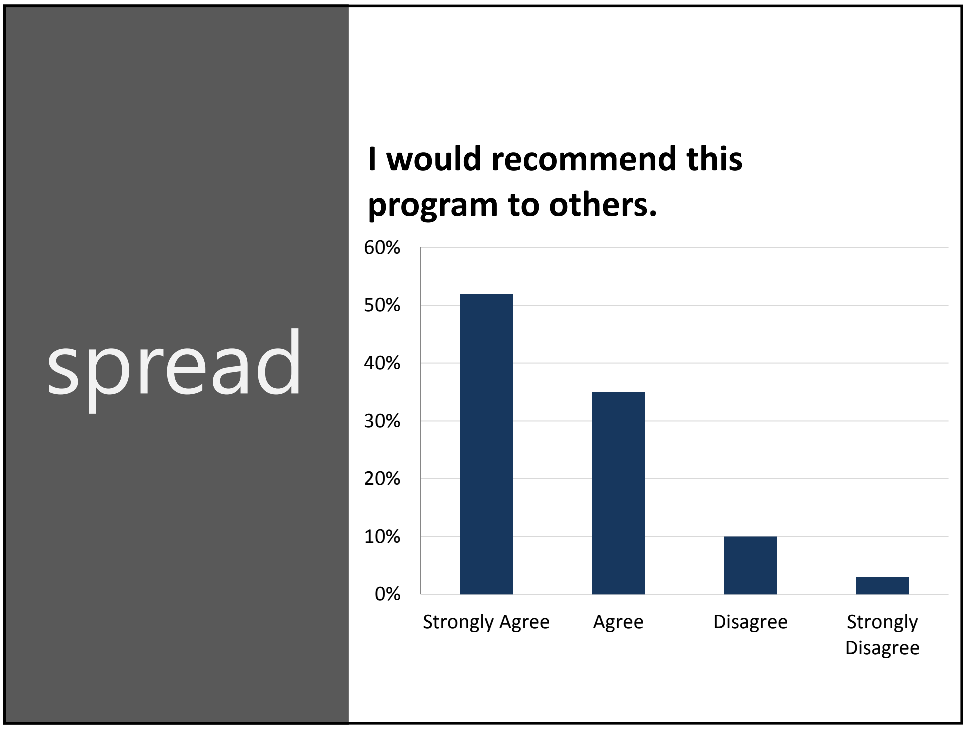
still part to whole

Over 1/3 of our students do not make it to graduation

iconarray.com

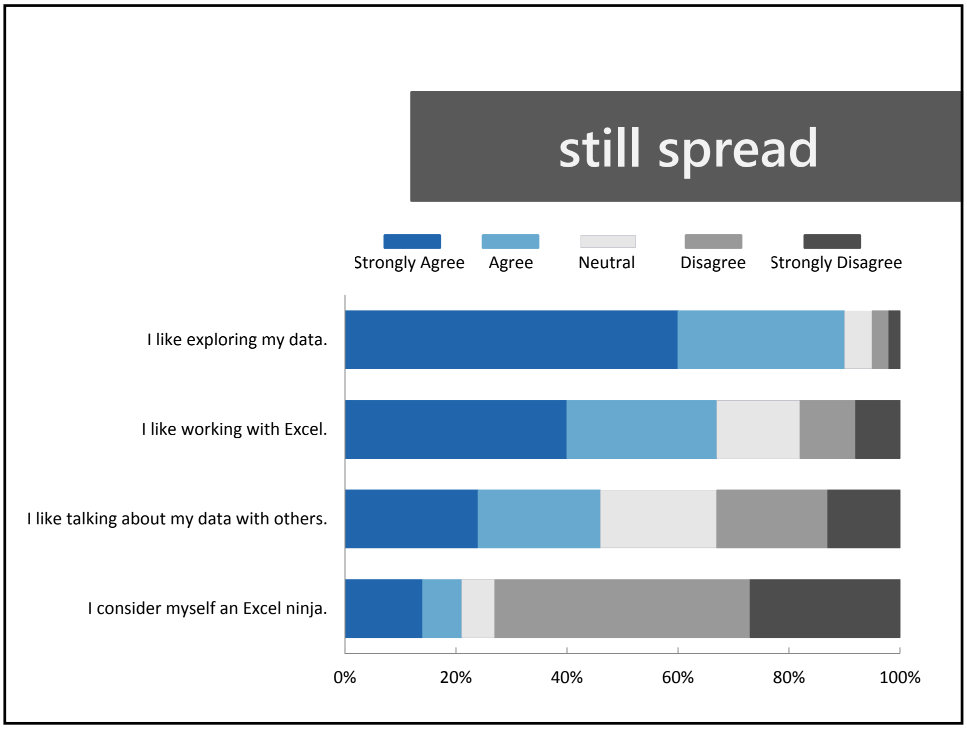


still part to whole

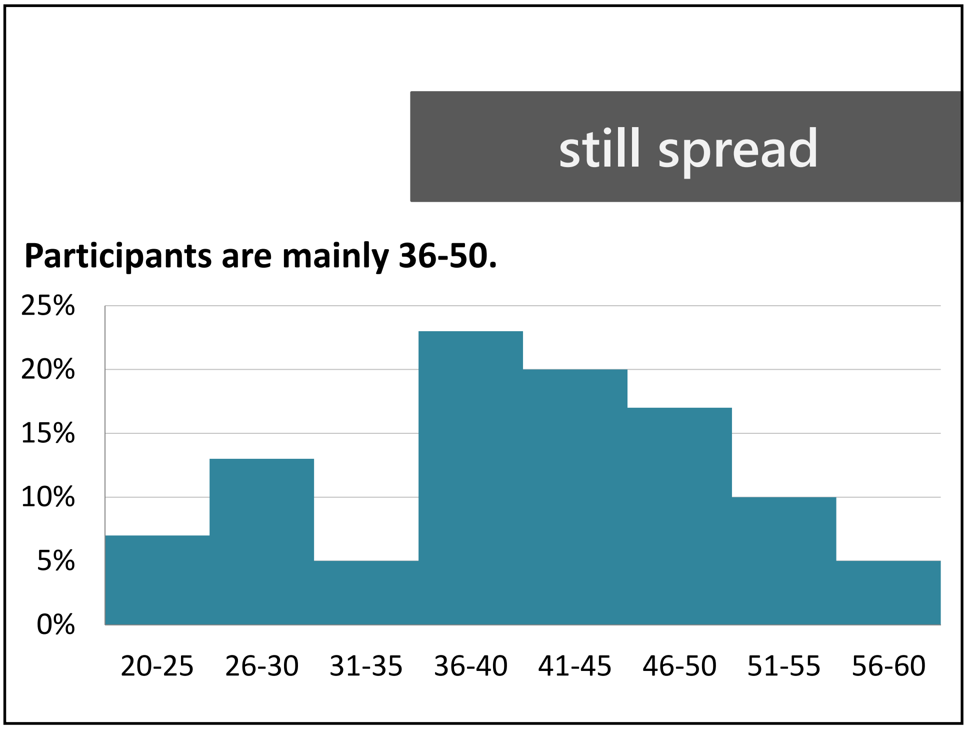


spread

I would recommend this program to others.

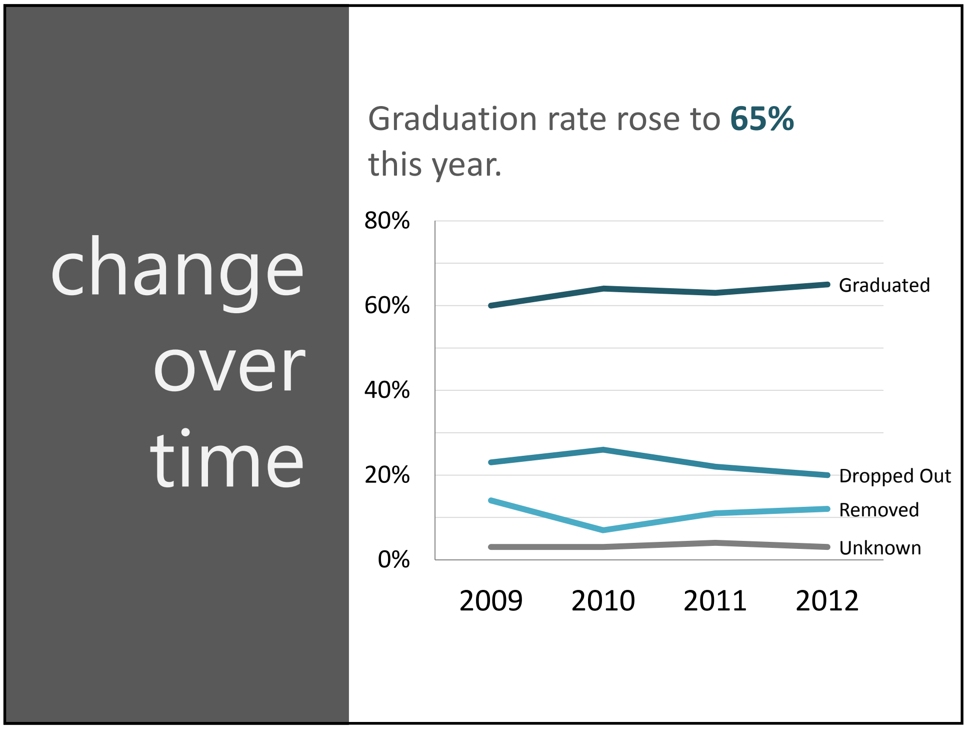


still spread



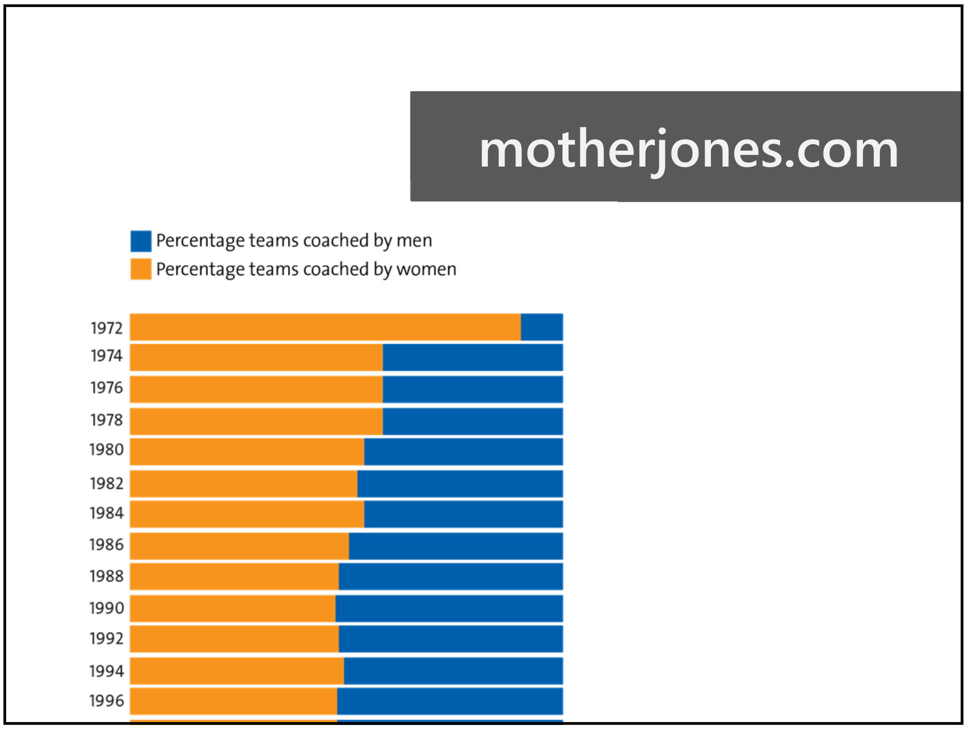
still spread

Participants are mainly 36-50.

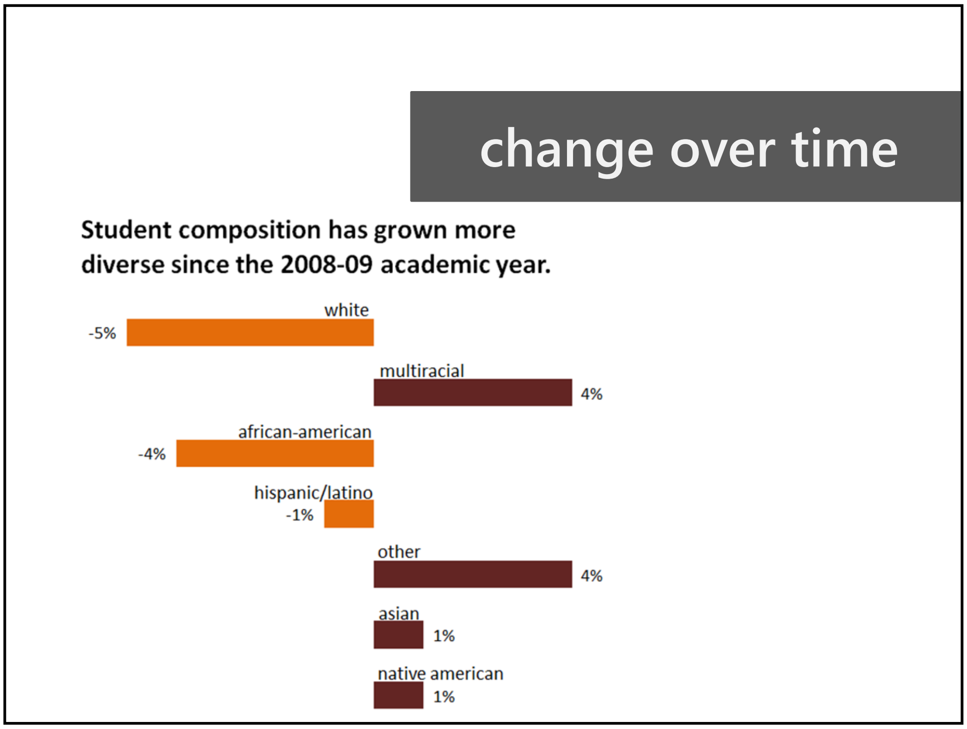


change over time

Graduation rate rose to **65%** this year.

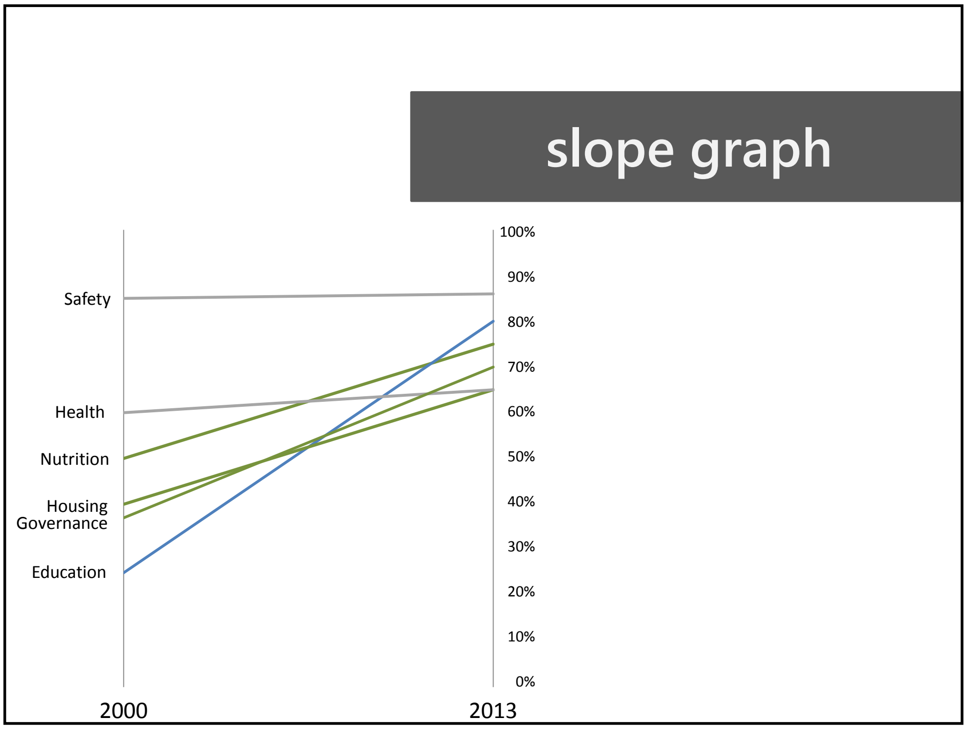


motherjones.com

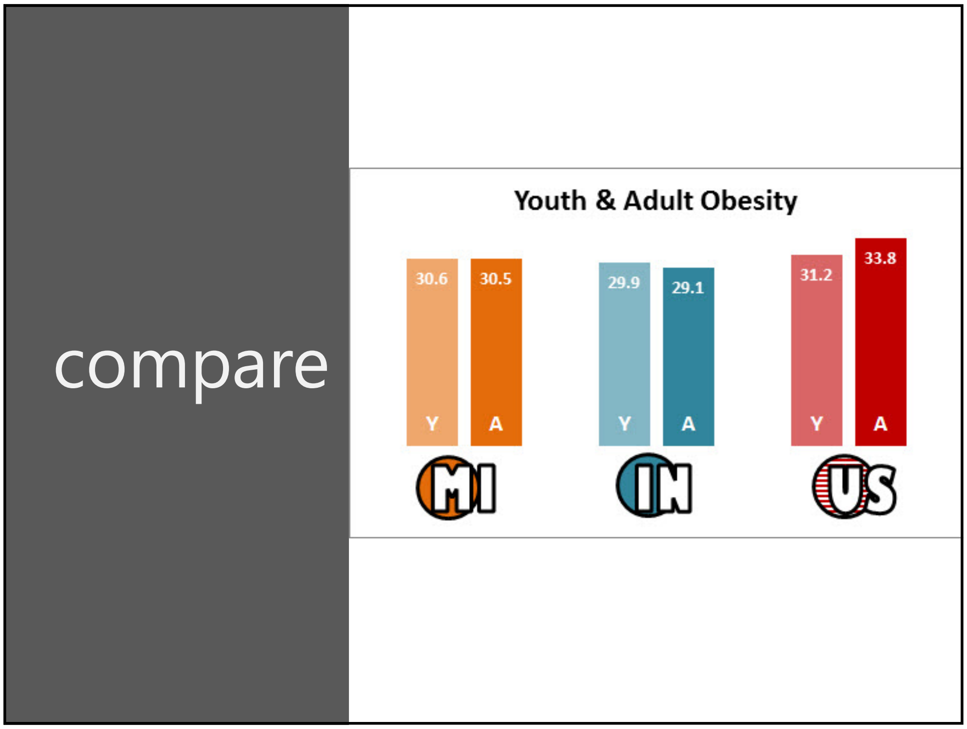


change over time

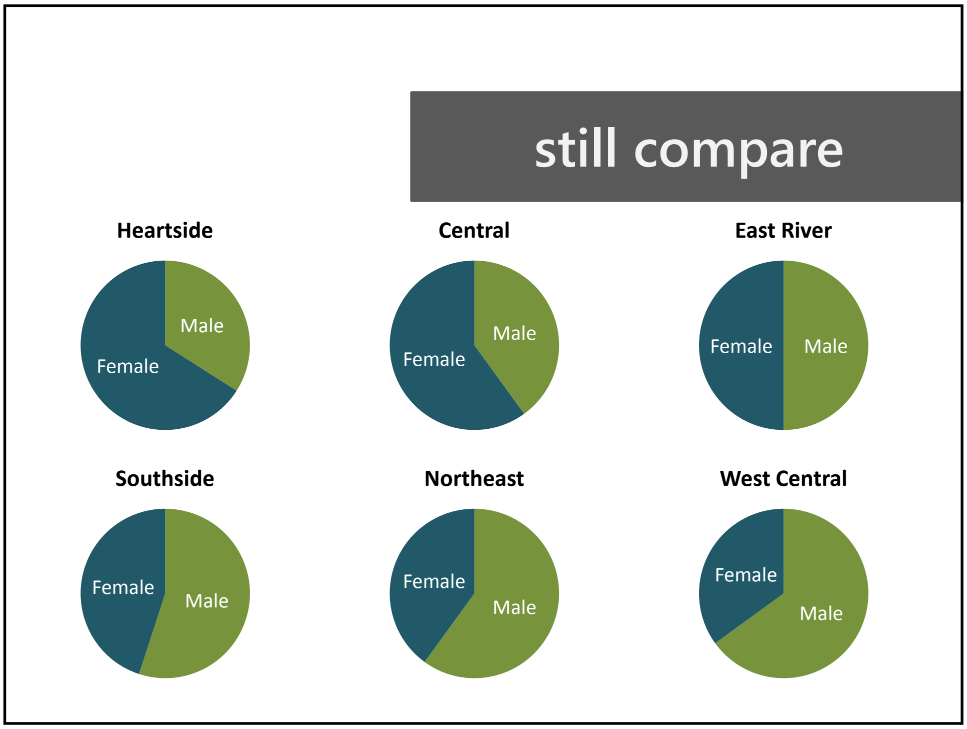
Student composition has grown more diverse since the 2008-09 academic year.



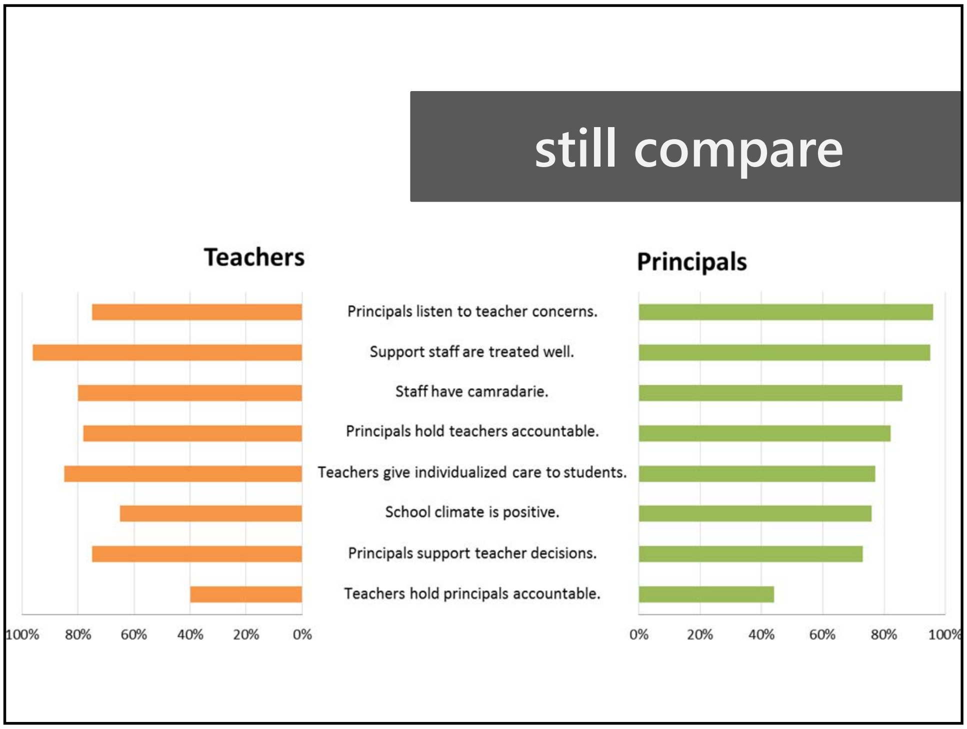
slope graph



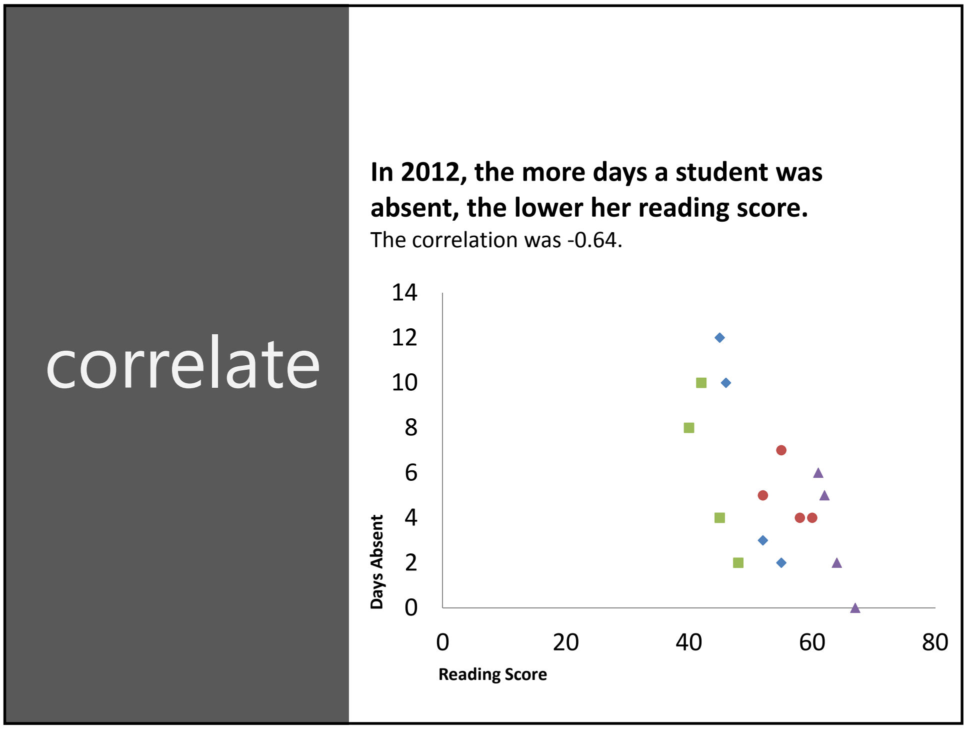
compare



still compare



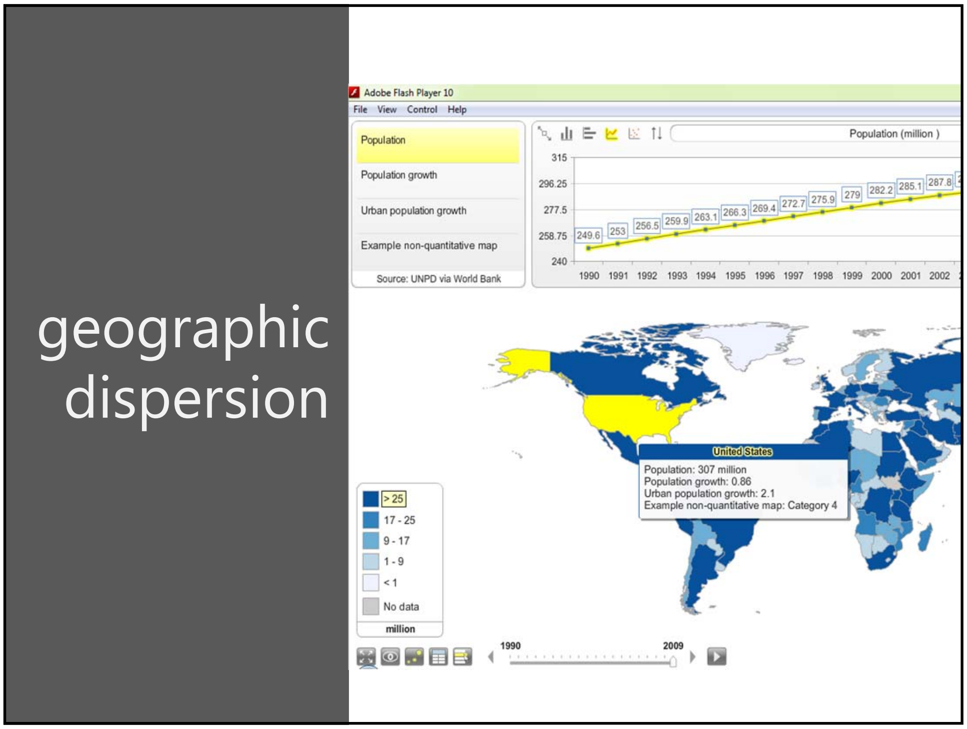
still compare



correlate

In 2012, the more days a student was absent, the lower her reading score.

The correlation was -0.64.

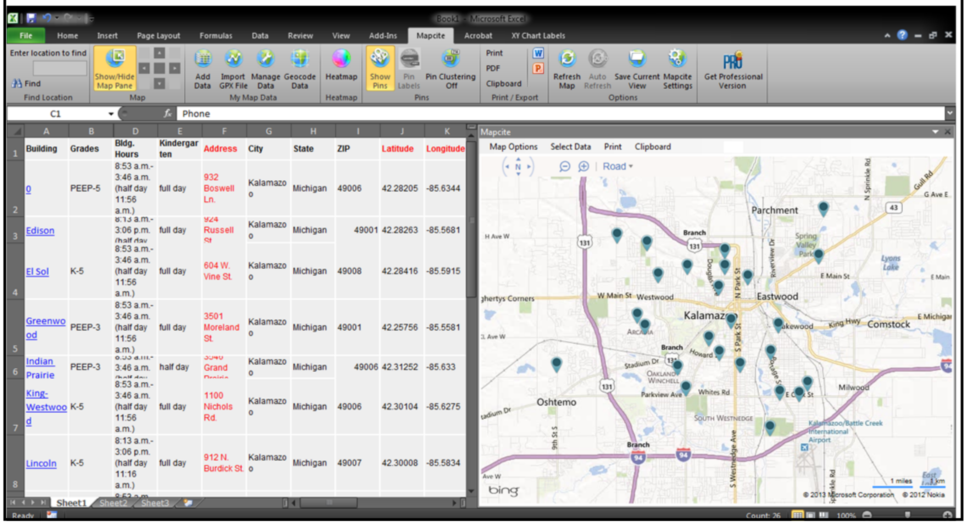


geographic dispersion

United States
Population: 307 million
Population growth: 0.86
Urban population growth: 2.1
Example non-quantitative map: Category 4

Adobe Flash Player 10
File View Control Help
Population
Population growth
Urban population growth
Example non-quantitative map
Source: UNPD via World Bank
Population (million)
315
296.25
277.5
258.75
240
249.6
253
256.5
259.9
263.1
266.3
269.4
272.7
275.9
279
282.2
285.1
287.8
1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002
> 25
17 - 25
9 - 17
1 - 9
< 1
No data
million
1990
2009

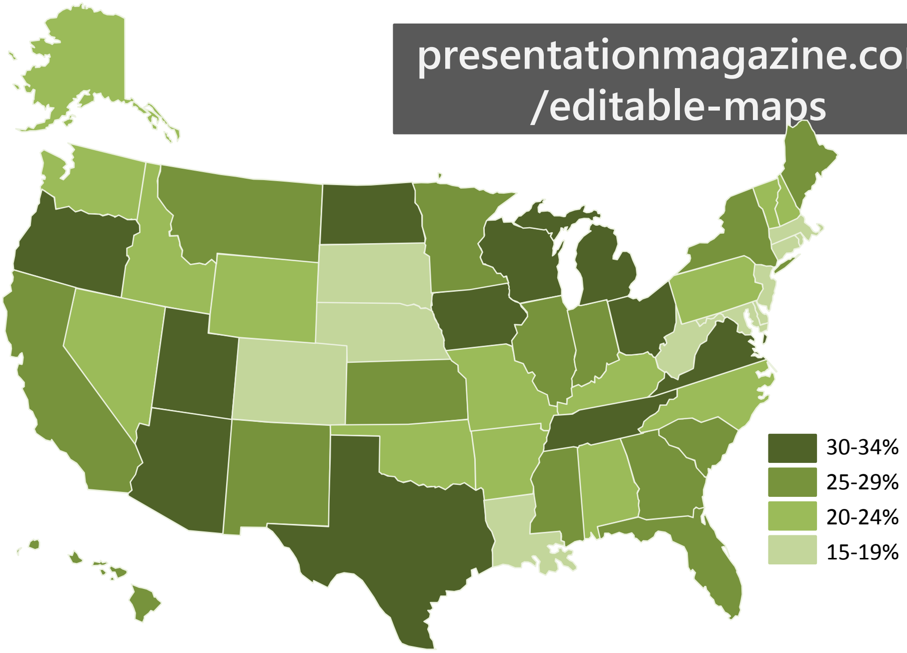
Mapcite Excel plugin


Book1 - Microsoft Excel
File
Home
Insert
Page Layout
Formulas
Data
Review
View
Add-Ins
Mapcite
Acrobat
XY Chart Labels
Enter location to find
Find
Find Location
Show/Hide Map Pane
Map
Add Data
Import GPX File
Manage Data
Geocode Data
My Map Data
Heatmap
Heatmap
Show Pins
Pin Labels
Pin Clustering Off
Pins
Print
PDF
Clipboard
Print / Export
Refresh Map
Auto Refresh
Save Current View
Mapcite Settings
Options
Get Professional Version
Mapcite
Map Options
Select Data
Print
Clipboard
Road
Parchment
Kalamazoo
Eastwood
Westwood
Comstock
Oshtemo
Milwood
bing
Sheet1
Sheet2
Sheet3
Ready

C1 Phone

	A	B	D	E	F	G	H	I	J	K
1	Building	Grades	Bldg. Hours	Kindergarten	Address	City	State	ZIP	Latitude	Longitude
2	0	PEEP-5	8:53 a.m.- 3:46 a.m. (half day 11:56 a.m.)	full day	932 Boswell Ln.	Kalamazoo	Michigan	49006	42.28205	-85.6344
3	Edison		8:13 a.m.- 3:06 p.m. (half day	full day	924 Russell St	Kalamazoo	Michigan	49001	42.28263	-85.5681
4	El Sol	K-5	8:53 a.m.- 3:46 a.m. (half day 11:56 a.m.)	full day	604 W. Vine St.	Kalamazoo	Michigan	49008	42.28416	-85.5915
5	Greenwood	PEEP-3	8:53 a.m.- 3:46 a.m. (half day 11:56 a.m.)	full day	3501 Moreland St.	Kalamazoo	Michigan	49001	42.25756	-85.5581
6	Indian Prairie	PEEP-3	8:53 a.m.- 3:46 a.m. (half day	half day	3540 Grand Prairie	Kalamazoo	Michigan	49006	42.31252	-85.633
7	King-Westwood	K-5	8:53 a.m.- 3:46 a.m. (half day 11:56 a.m.)	full day	1100 Nichols Rd.	Kalamazoo	Michigan	49006	42.30104	-85.6275
8	Lincoln	K-5	8:13 a.m.- 3:06 p.m. (half day 11:16 a.m.)	full day	912 N. Burdick St.	Kalamazoo	Michigan	49007	42.30008	-85.5834

presentationmagazine.com /editable-maps


30-34%
25-29%
20-24%
15-19%

Putting it All Together

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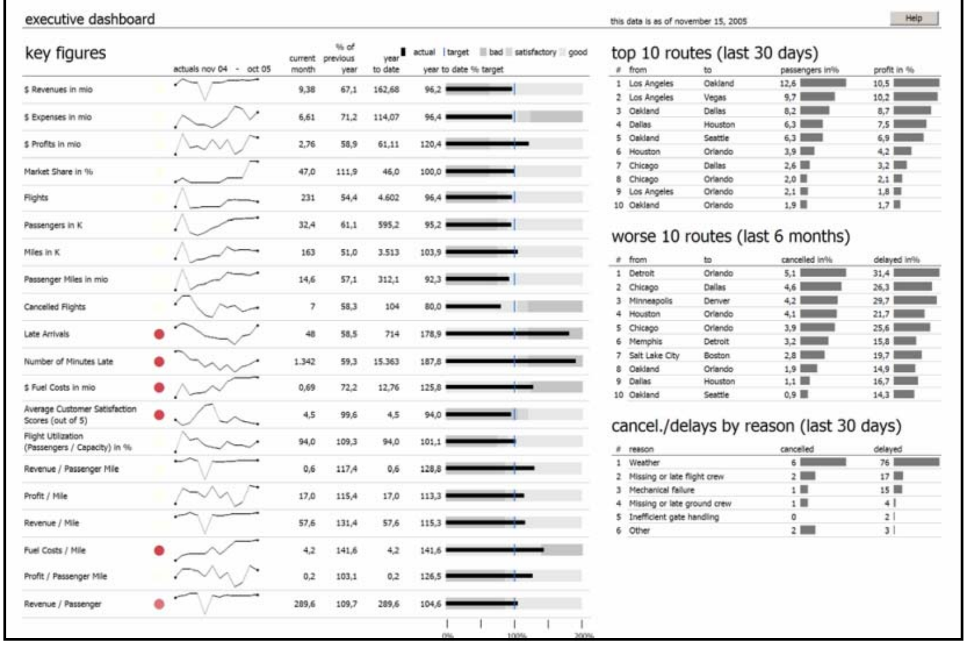
perceptualedge.com



executive dashboard

this data is as of november 15, 2005

key figures

		actuals nov 04 - oct 05	current month	% of previous year	year to date	year to date % target
$ Revenues in mio			9,38	67,1	162,68	96,2
$ Expenses in mio			6,61	71,2	114,07	96,4
$ Profits in mio			2,76	58,9	61,11	120,4
Market Share in %			47,0	111,9	46,0	100,0
Flights			231	54,4	4.602	96,4
Passengers in K			32,4	61,1	595,2	95,2
Miles in K			163	51,0	3.513	103,9
Passenger Miles in mio			14,6	57,1	312,1	92,3
Cancelled Flights			7	58,3	104	80,0
Late Arrivals	●		48	58,5	714	178,9
Number of Minutes Late	●		1.342	59,3	15.363	187,8
$ Fuel Costs in mio	●		0,69	72,2	12,76	125,8
Average Customer Satisfaction Scores (out of 5)	●		4,5	99,6	4,5	94,0
Flight Utilization (Passengers / Capacity) in %			94,0	109,3	94,0	101,1
Revenue / Passenger Mile			0,6	117,4	0,6	128,8
Profit / Mile			17,0	115,4	17,0	113,3
Revenue / Mile			57,6	131,4	57,6	115,3
Fuel Costs / Mile	●		4,2	141,6	4,2	141,6
Profit / Passenger Mile			0,2	103,1	0,2	126,5
Revenue / Passenger	●		289,6	109,7	289,6	104,6

top 10 routes (last 30 days)

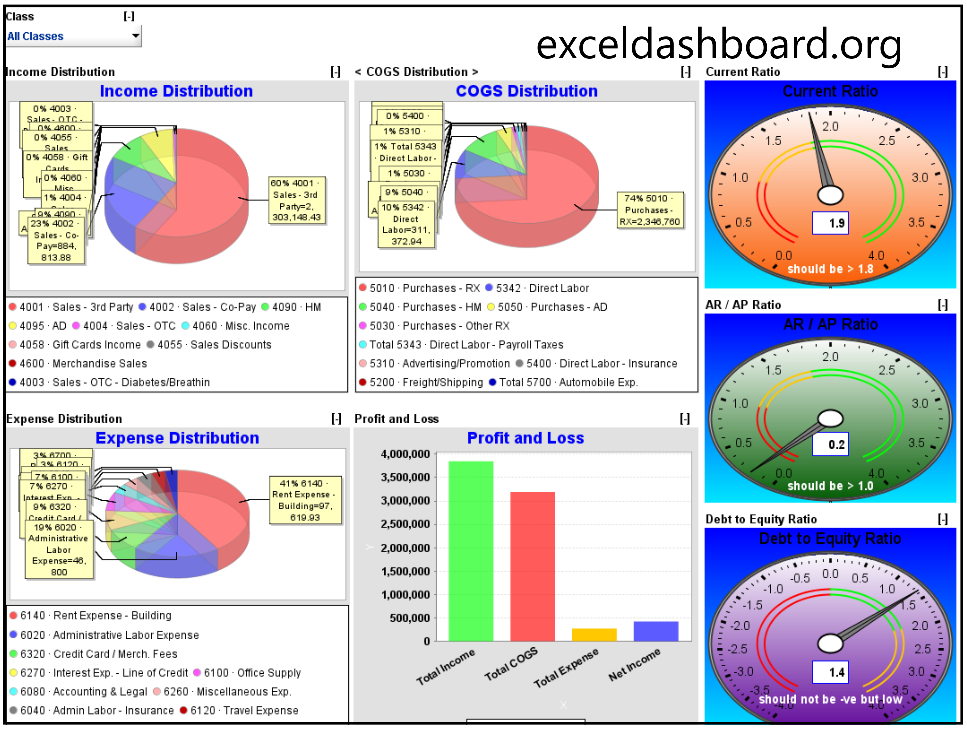
#	from	to	passengers in%	profit in %
1	Los Angeles	Oakland	12,6	10,5
2	Los Angeles	Vegas	9,7	10,2
3	Oakland	Dallas	8,2	8,7
4	Dallas	Houston	6,3	7,5
5	Oakland	Seattle	6,3	6,9
6	Houston	Orlando	3,9	4,2
7	Chicago	Dallas	2,6	3,2
8	Chicago	Orlando	2,0	2,1
9	Los Angeles	Orlando	2,1	1,8
10	Oakland	Orlando	1,9	1,7

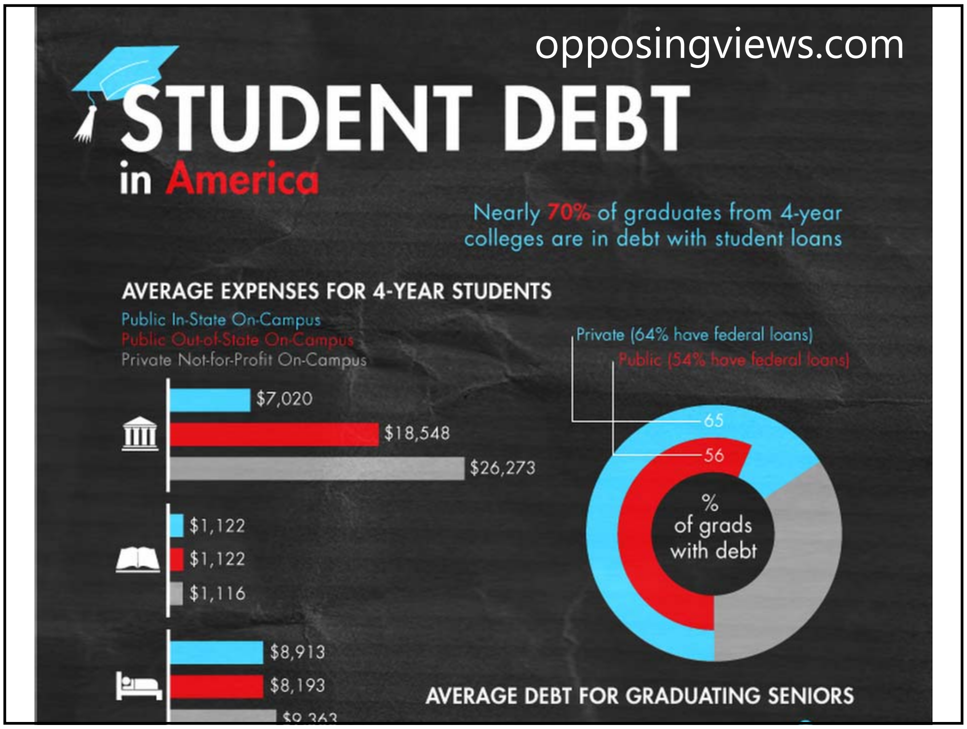
worse 10 routes (last 6 months)

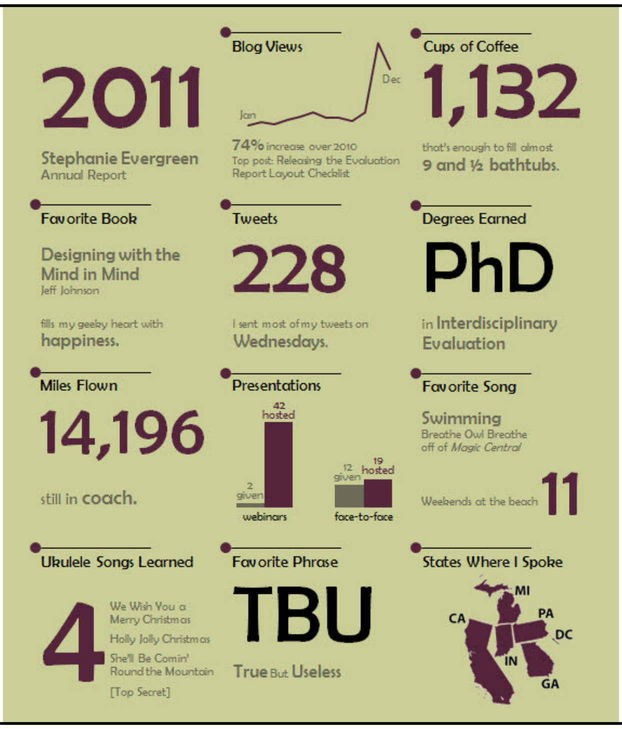
#	from	to	cancelled in%	delayed in%
1	Detroit	Orlando	5,1	31,4
2	Chicago	Dallas	4,6	26,3
3	Minneapolis	Denver	4,2	29,7
4	Houston	Orlando	4,1	21,7
5	Chicago	Orlando	3,9	25,6
6	Memphis	Detroit	3,2	15,8
7	Salt Lake City	Boston	2,8	19,7
8	Oakland	Orlando	1,9	14,9
9	Dallas	Houston	1,1	16,7
10	Oakland	Seattle	0,9	14,3

cancel./delays by reason (last 30 days)

#	reason	cancelled	delayed
1	Weather	6	76
2	Missing or late flight crew	2	17
3	Mechanical failure	1	15
4	Missing or late ground crew	1	4
5	Inefficient gate handling	0	2
6	Other	2	3


exceldashboard.org
Class
All Classes
Income Distribution
Income Distribution
60% 4001 · Sales - 3rd Party=2,303,148.43
23% 4002 · Sales - Co-Pay=884,813.88
4001 · Sales - 3rd Party
4002 · Sales - Co-Pay
4090 · HM
4095 · AD
4004 · Sales - OTC
4060 · Misc. Income
4058 · Gift Cards Income
4055 · Sales Discounts
4600 · Merchandise Sales
4003 · Sales - OTC - Diabetes/Breathin
< COGS Distribution >
COGS Distribution
74% 5010 · Purchases - RX=2,346,760
10% 5342 · Direct Labor=311,372.94
5010 · Purchases - RX
5342 · Direct Labor
5040 · Purchases - HM
5050 · Purchases - AD
5030 · Purchases - Other RX
Total 5343 · Direct Labor - Payroll Taxes
5310 · Advertising/Promotion
5400 · Direct Labor - Insurance
5200 · Freight/Shipping
Total 5700 · Automobile Exp.
Current Ratio
Current Ratio
1.9
should be > 1.8
AR / AP Ratio
AR / AP Ratio
0.2
should be > 1.0
Debt to Equity Ratio
Debt to Equity Ratio
1.4
should not be -ve but low
Expense Distribution
Expense Distribution
41% 6140 · Rent Expense - Building=97,619.93
19% 6020 · Administrative Labor Expense=46,800
6140 · Rent Expense - Building
6020 · Administrative Labor Expense
6320 · Credit Card / Merch. Fees
6270 · Interest Exp. - Line of Credit
6100 · Office Supply
6080 · Accounting & Legal
6260 · Miscellaneous Exp.
6040 · Admin Labor - Insurance
6120 · Travel Expense
Profit and Loss
Profit and Loss
4,000,000
3,500,000
3,000,000
2,500,000
2,000,000
1,500,000
1,000,000
500,000
0
Total Income
Total COGS
Total Expense
Net Income


opposingviews.com
STUDENT DEBT
in America
Nearly 70% of graduates from 4-year colleges are in debt with student loans
AVERAGE EXPENSES FOR 4-YEAR STUDENTS
Public In-State On-Campus
Public Out-of-State On-Campus
Private Not-for-Profit On-Campus
$7,020
$18,548
$26,273
$1,122
$1,122
$1,116
$8,913
$8,193
$9,363
Private (64% have federal loans)
Public (54% have federal loans)
65
56
% of grads with debt
AVERAGE DEBT FOR GRADUATING SENIORS



2011

Stephanie Evergreen
Annual Report

Blog Views

74% increase over 2010
Top post: Releasing the Evaluation Report Layout Checklist

Cups of Coffee

1,132

that's enough to fill almost
9 and ½ bathtubs.

Favorite Book

Designing with the Mind in Mind
Jeff Johnson

fills my geeky heart with
happiness.

Tweets

228

I sent most of my tweets on
Wednesdays.

Degrees Earned

PhD

in Interdisciplinary Evaluation

Miles Flown

14,196

still in coach.

Presentations

Favorite Song

Swimming
Breathe Owl Breathe
off of *Magic Central*

Weekends at the beach 11

Ukulele Songs Learned

4

We Wish You a Merry Christmas
Holly Jolly Christmas
She'll Be Comin' Round the Mountain
[Top Secret]

Favorite Phrase

TBU

True But Useless

States Where I Spoke

Smart
Data
Visualization

Stephanie Evergreen
stephanieevergreen.com/blog
twitter.com/evalu8r