

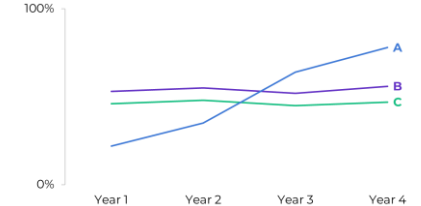
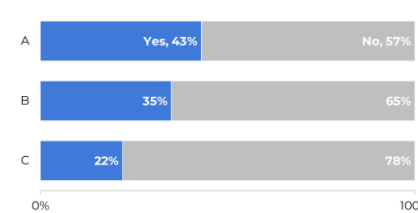
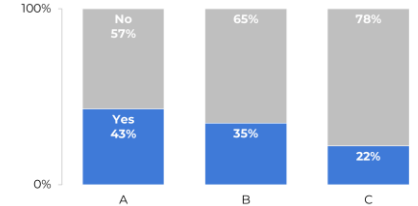
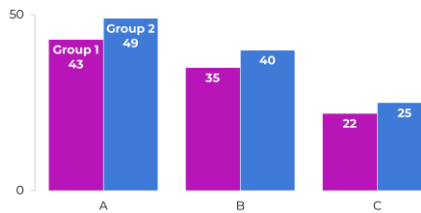
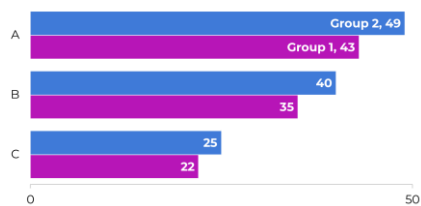
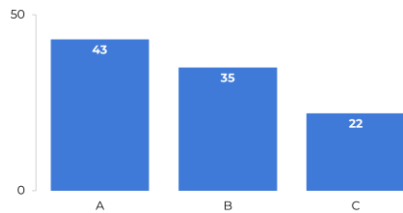
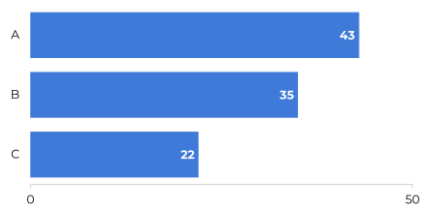
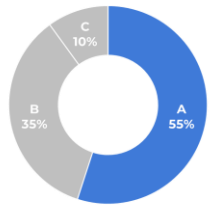
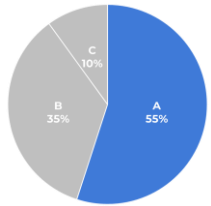
Advanced Charting in Excel

with Ann K. Emery

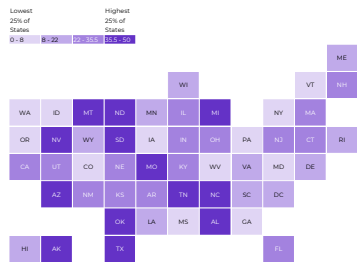
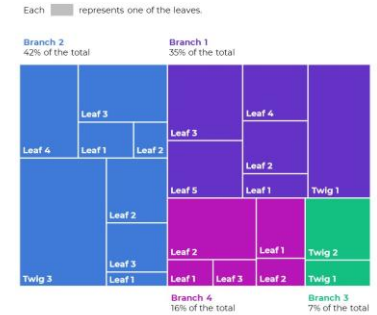
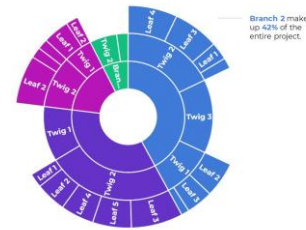
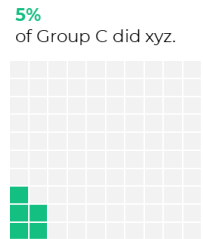
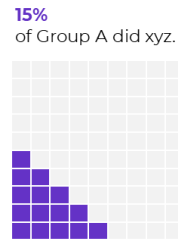
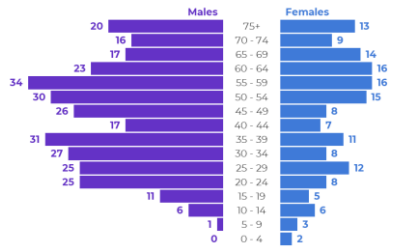
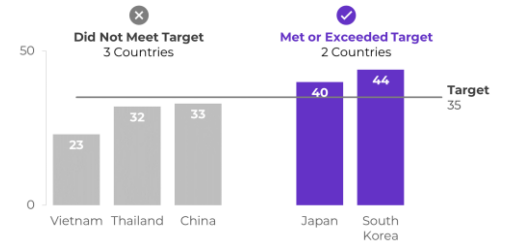
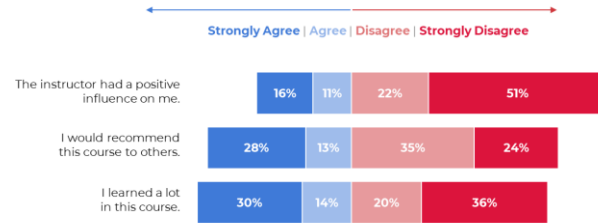
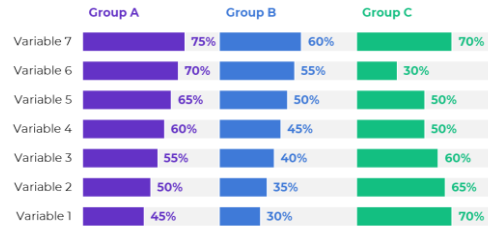
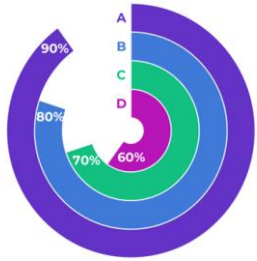


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data
studio

Great Graphs in Excel

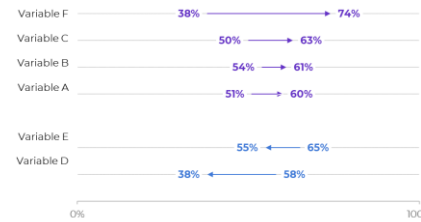


Great Graphs in Excel



Increases from Year 1 to Year 2

Decreases from Year 1 to Year 2



Great Graphs in Excel

Beginner

Overused Native Charts

- Pies & Donuts
- Bars & Columns
- Clustered Bars & Columns
- Stacked Bars & Columns
- Lines

Intermediate

Underused Native Charts

- Combo
- Overlapping Bars & Columns
- Area
- Slopes
- Small Multiples Lines
- Bumps
- Scatter Plots
- Bubbles
- Tree Maps
- Heat Maps
- Sunbursts

Advanced

Non-Native Charts

- B'Arcs
- Stream
- Waffles
- Small Multiples Bars
- Population Pyramids
- Diverging Stacked Bars
- Lollipops
- Dots
- Swarms
- Tile Grid Maps

Great Graphs in Excel

Beginner

Overused Native Charts

- Pies & Donuts
- Bars & Columns
- Clustered Bars & Columns
- Stacked Bars & Columns
- Lines

Intermediate

Underused Native Charts

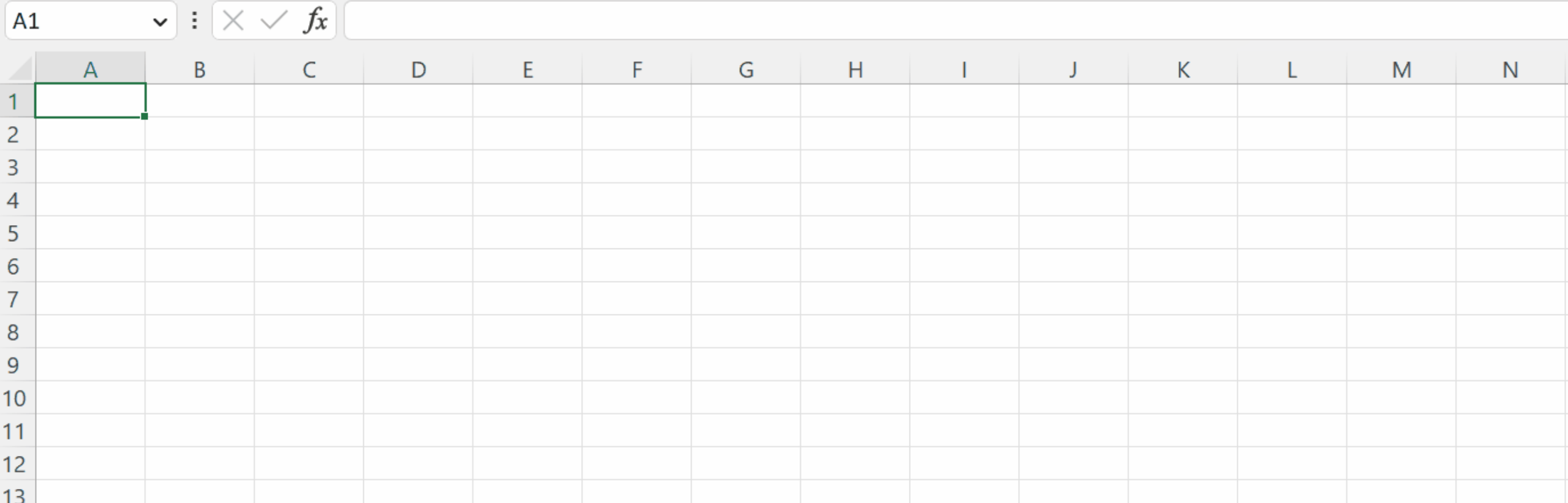
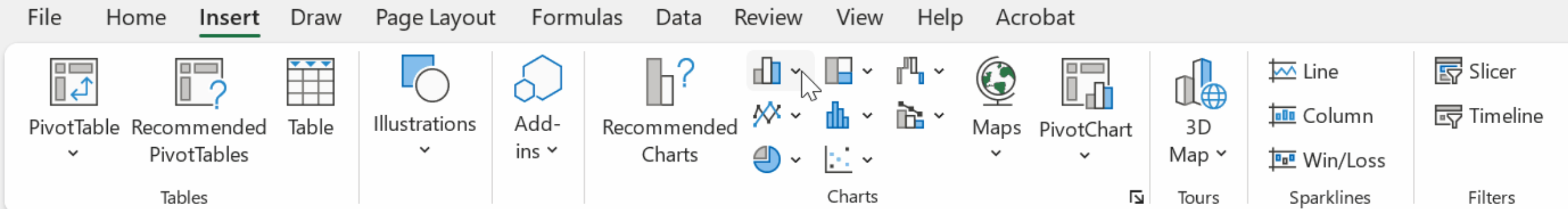
- Combo
- Overlapping Bars & Columns
- Area
- Slopes
- Small Multiples Lines
- Bumps
- Scatter Plots
- Bubbles
- Tree Maps
- Heat Maps
- Sunbursts

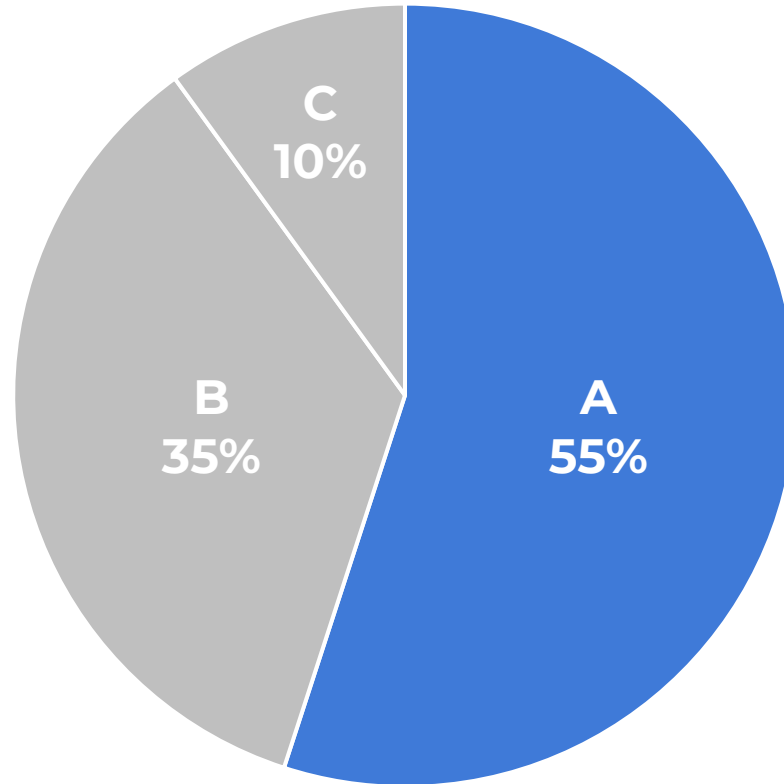
Advanced

Non-Native Charts

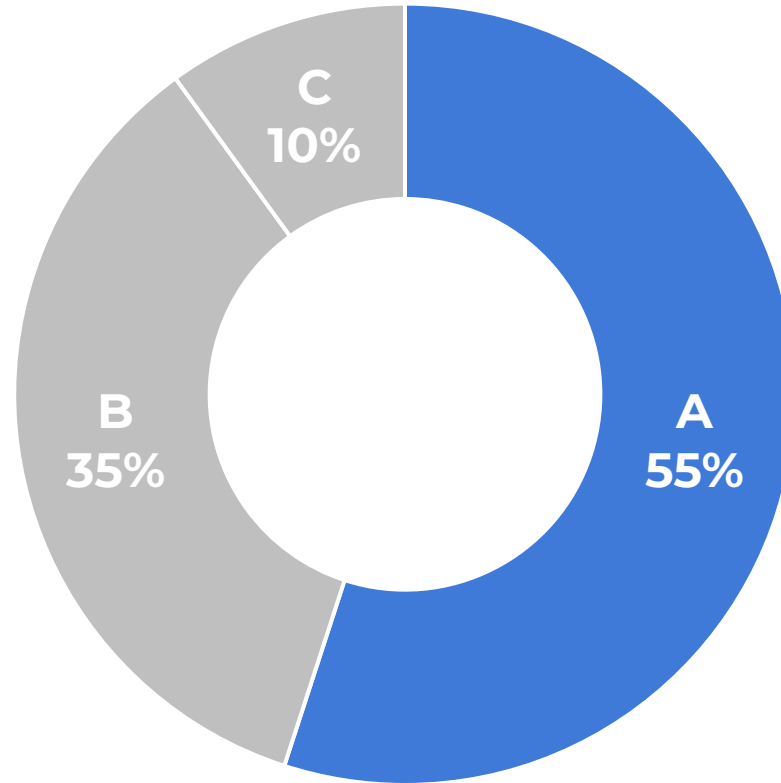
- B'Arcs
- Stream
- Waffles
- Small Multiples Bars
- Population Pyramids
- Diverging Stacked Bars
- Lollipops
- Dots
- Swarms
- Tile Grid Maps

Beginner: Overused Native Charts

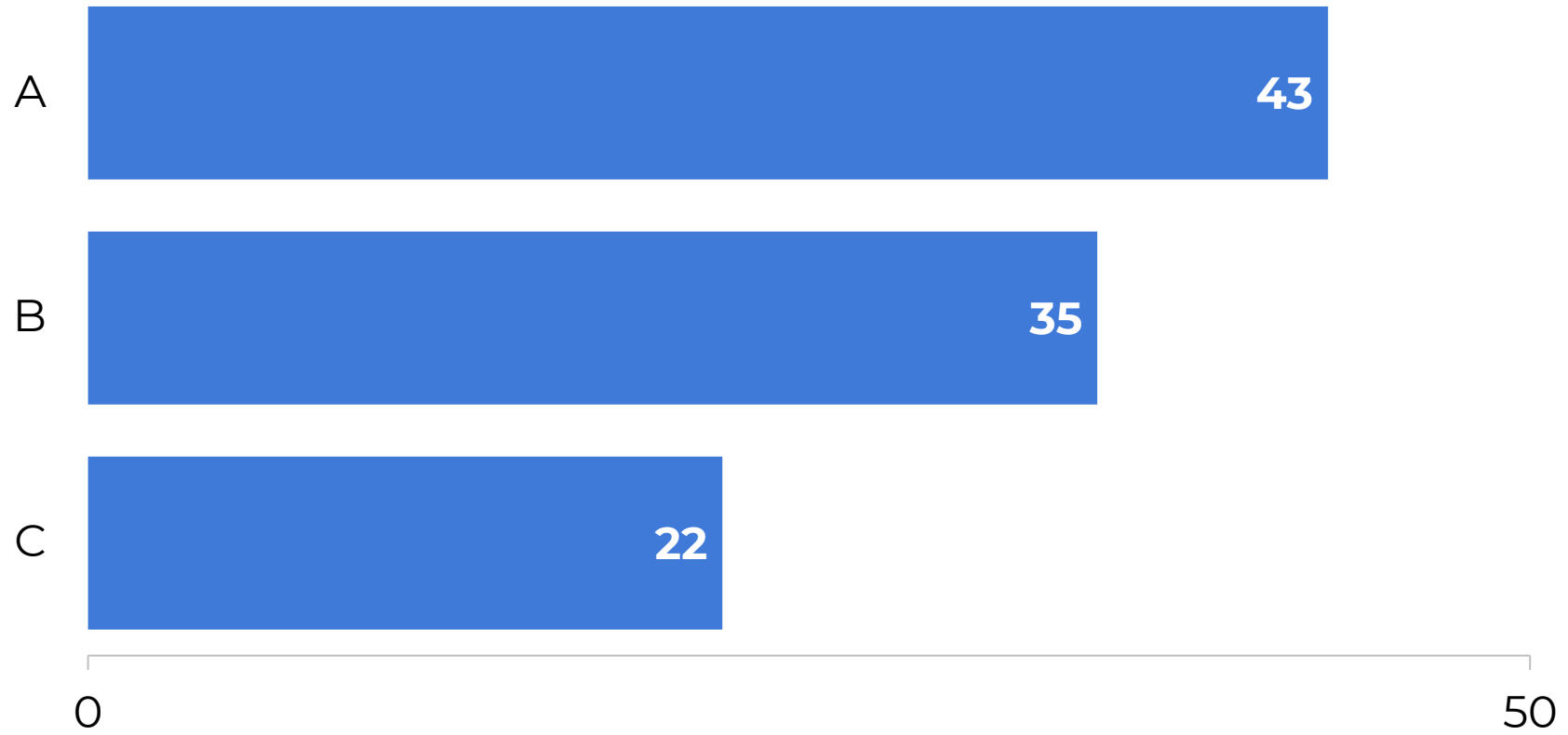




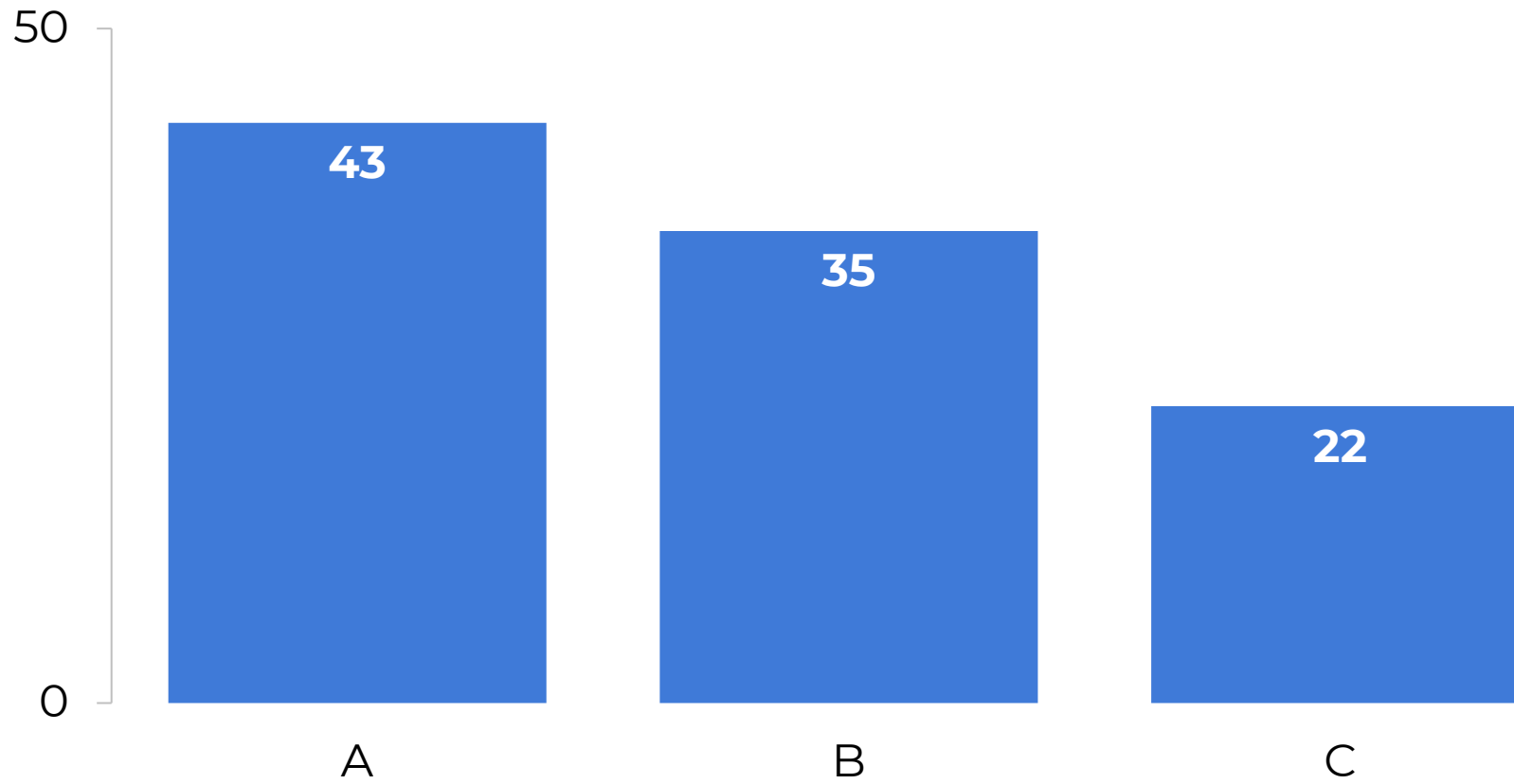
Donuts



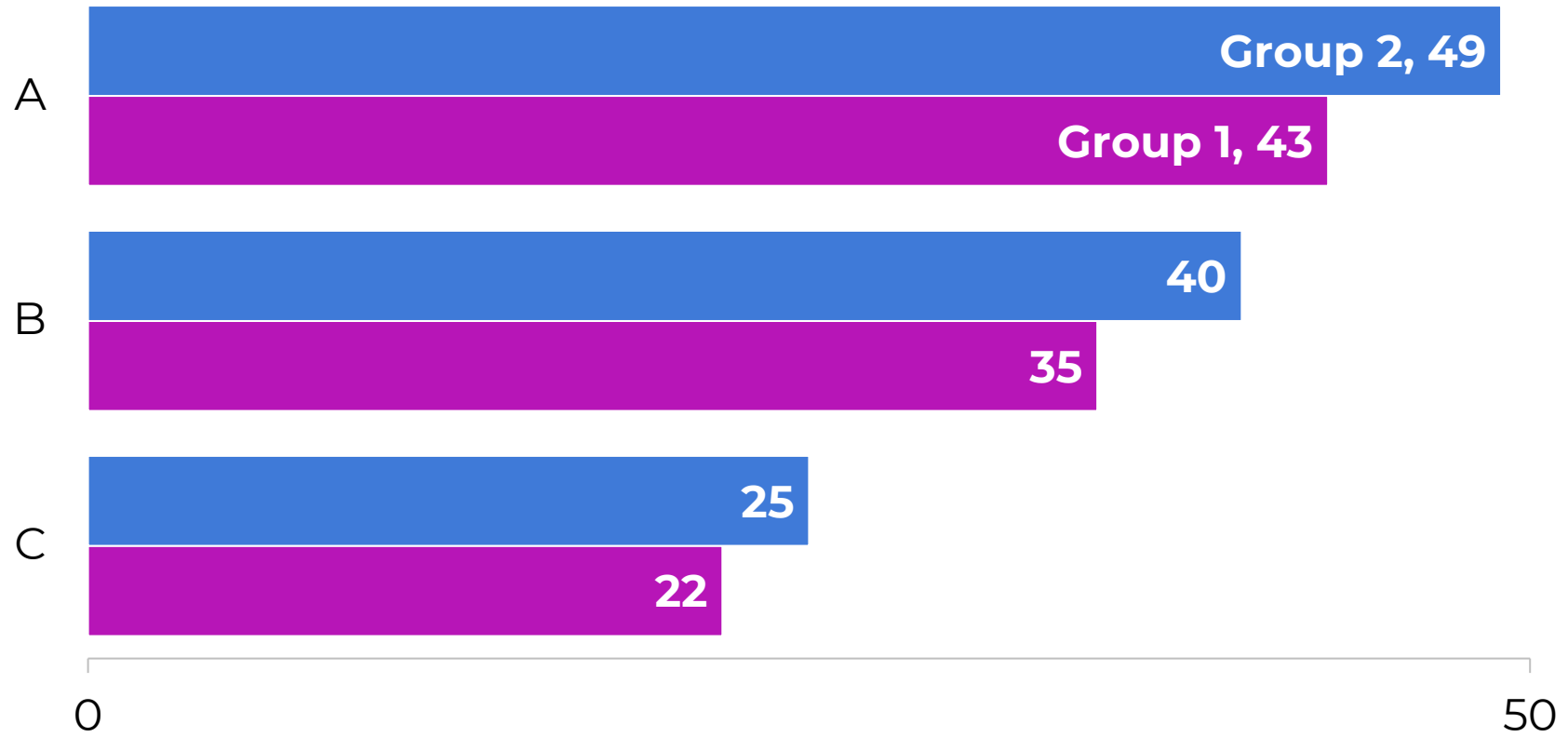
Bars



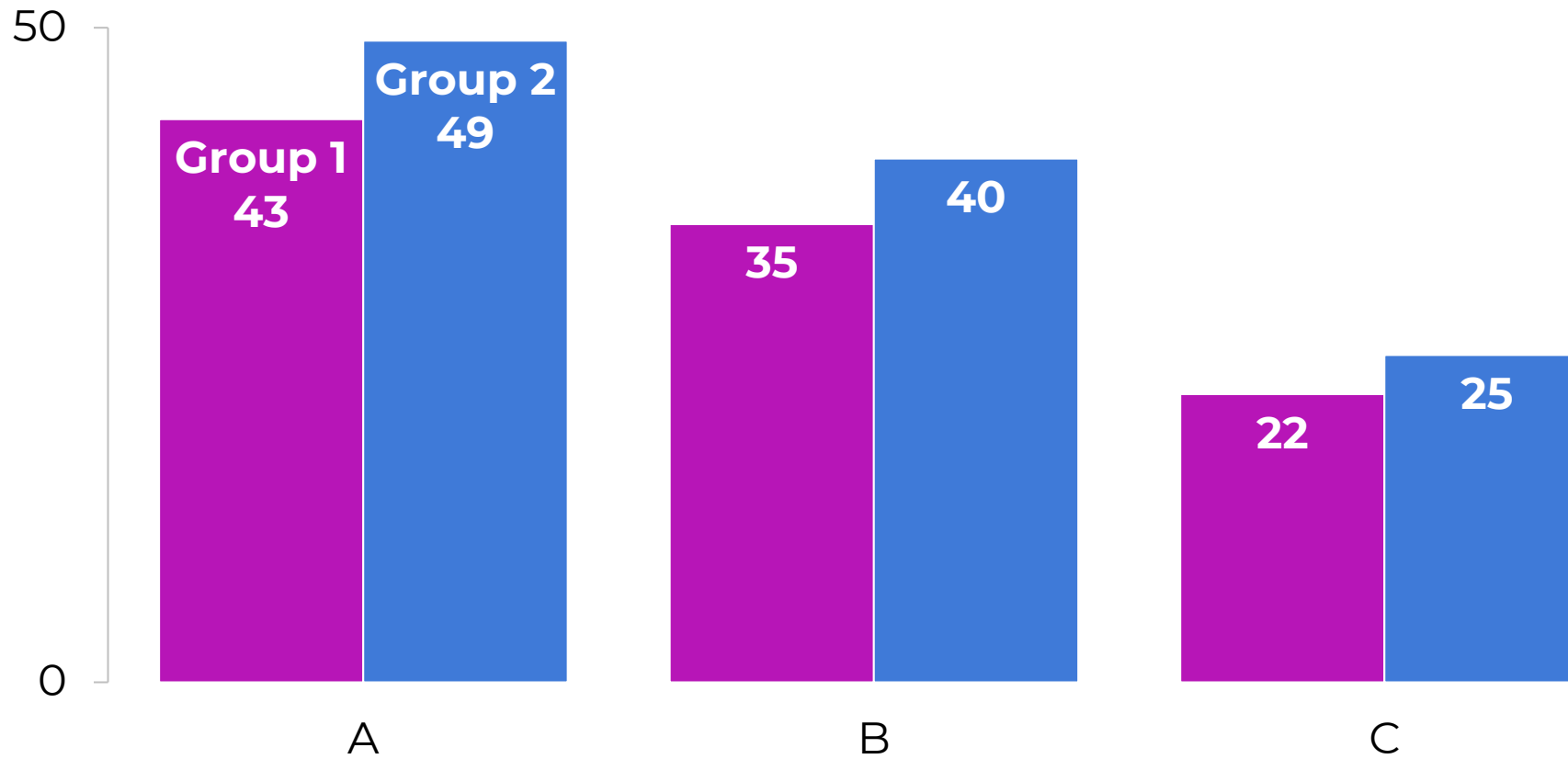
Columns



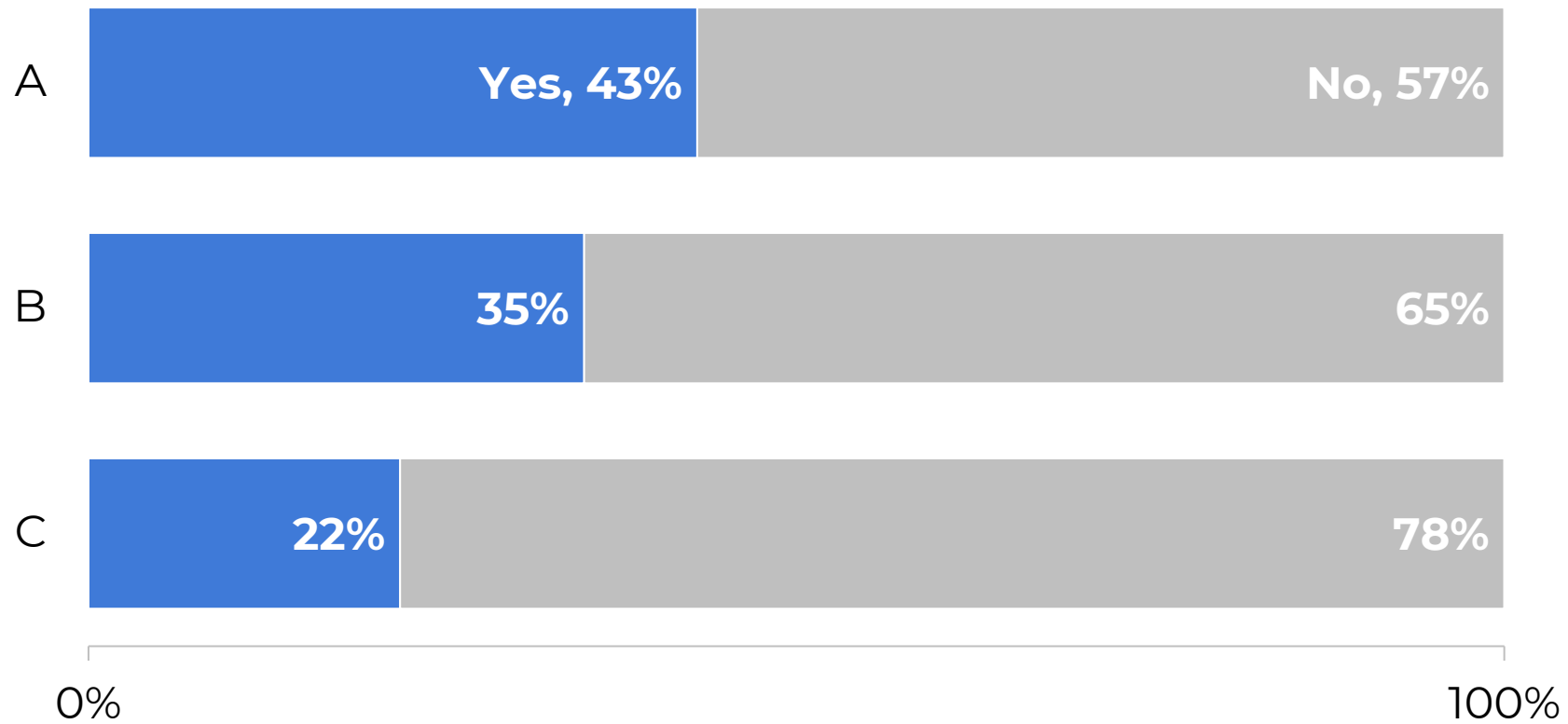
Clustered Bars



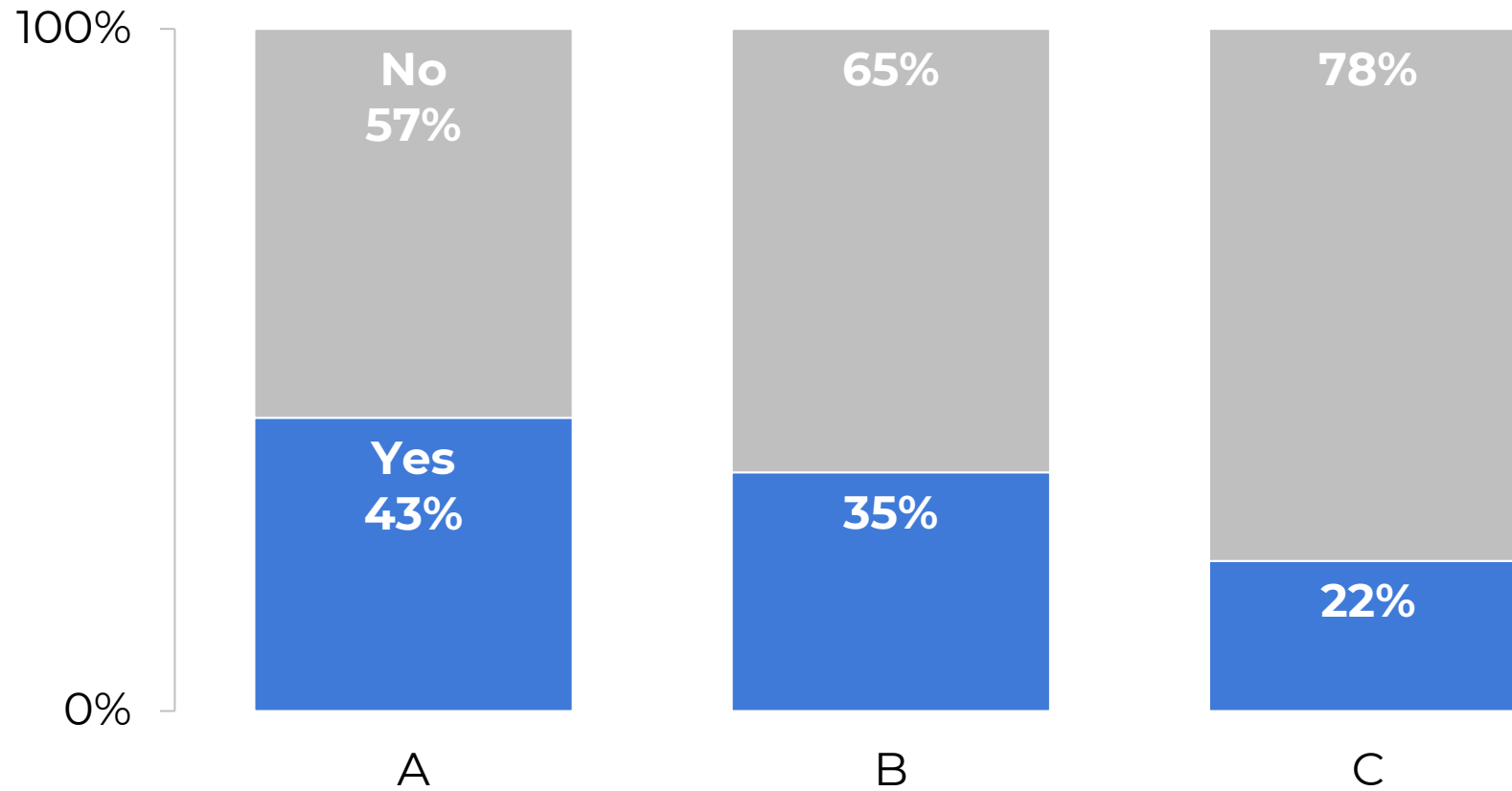
Clustered Columns



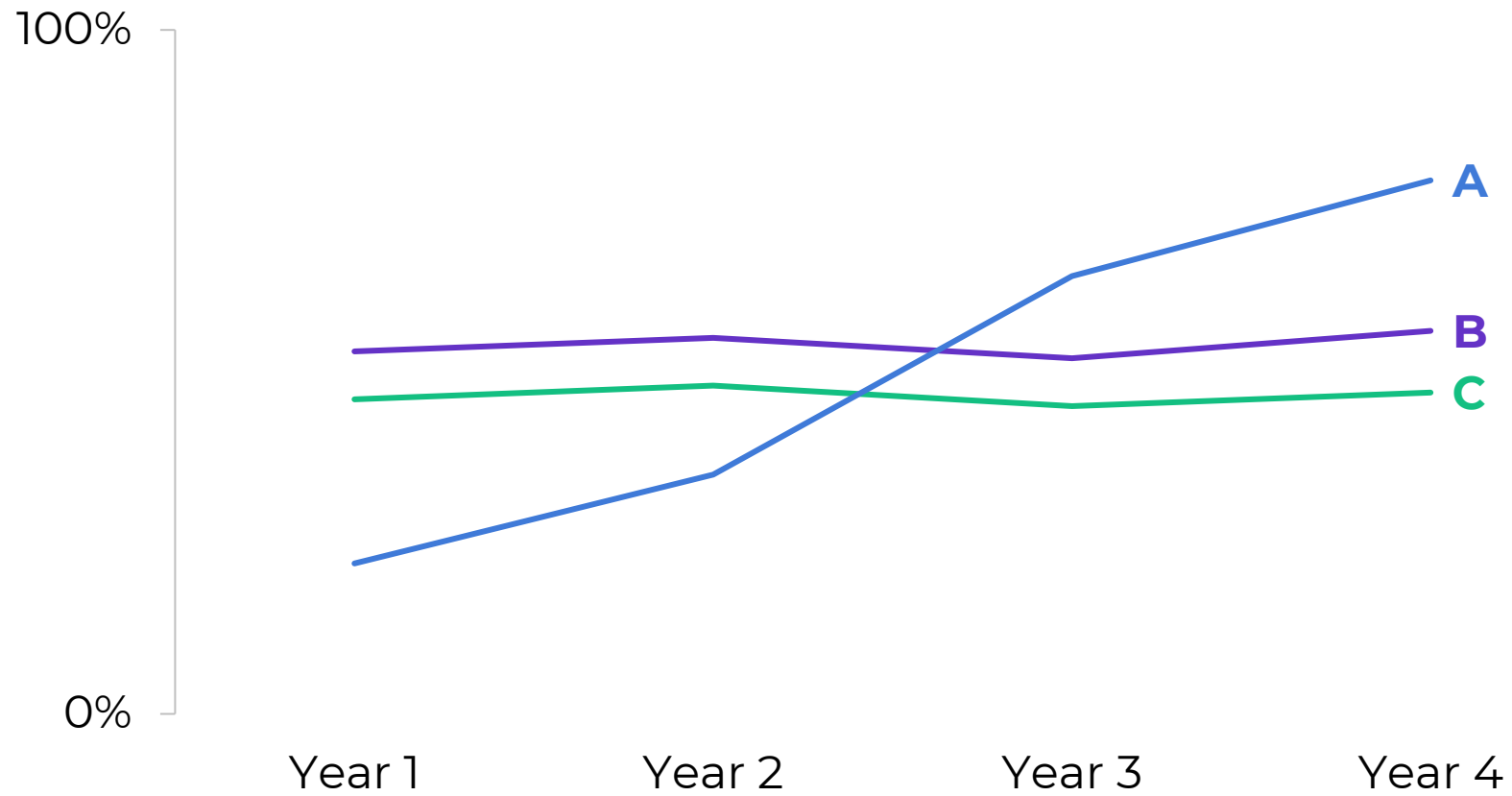
Stacked Bars



Stacked Columns



Line Graphs

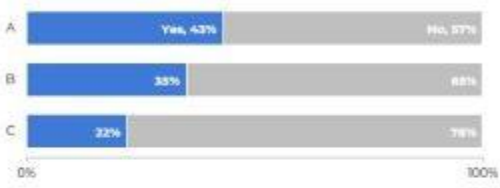


Beware! Zzz... & Lacking Analytical Depth

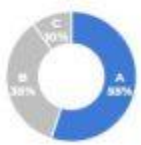
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Fusce est. Vivamus a tellus. Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Proin pharetra nonummy pede. Mauris et orci. Aenean nec lorem. In porttitor. Donec laoreet nonummy augue. Suspendisse dui purus, scelerisque at, vulputate vitae, pretium mattis, nunc. Mauris eget neque at sem venenatis eleifend. Ut nonummy. Fusce aliquet pede non pede. Suspendisse dapibus lorem pellentesque magna. Integer nulla. Donec blandit feugiat ligula. Donec hendrerit, felis et imperdiet euismod, purus ipsum pretium metus. In lacina nulla nisl eget sapien.

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Category	Yes (%)	No (%)
A	43%	57%
B	33%	67%
C	22%	78%



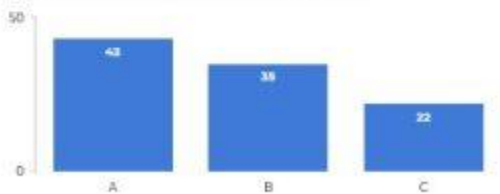
Category	Percentage (%)
A	43%
B	33%
C	22%

Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Proin pharetra nonummy pede. Mauris et orci. Aenean nec lorem. In porttitor. Donec laoreet nonummy augue.

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Category	Group 1	Group 2
A	43	49
B	35	40
C	22	28




Category	Group 1	Group 2
A	43	49
B	35	40
C	22	28

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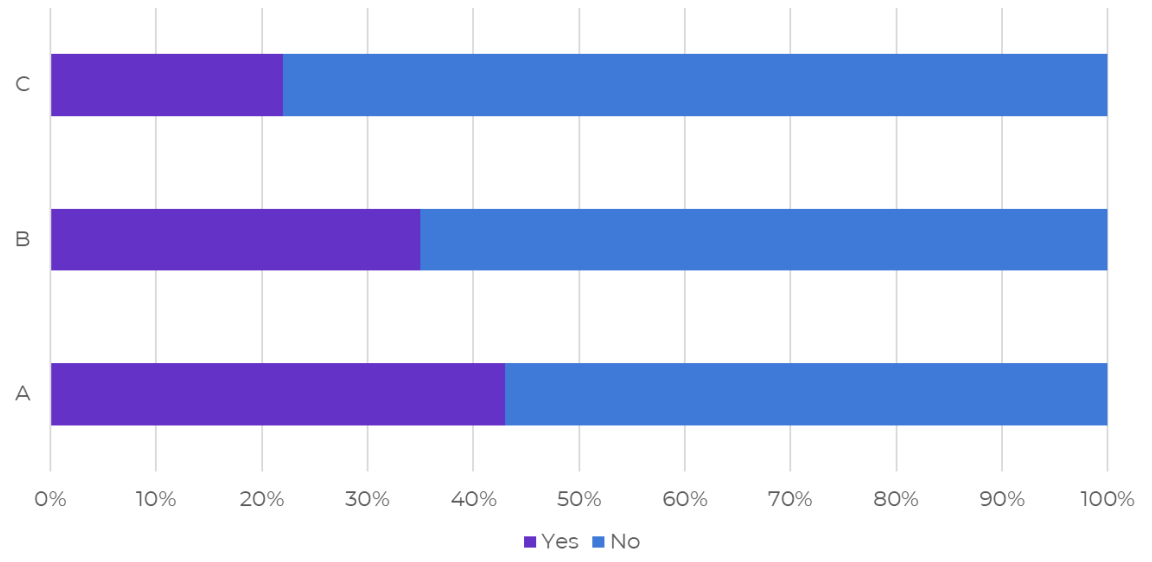
Category	Value
A	43
B	35
C	22



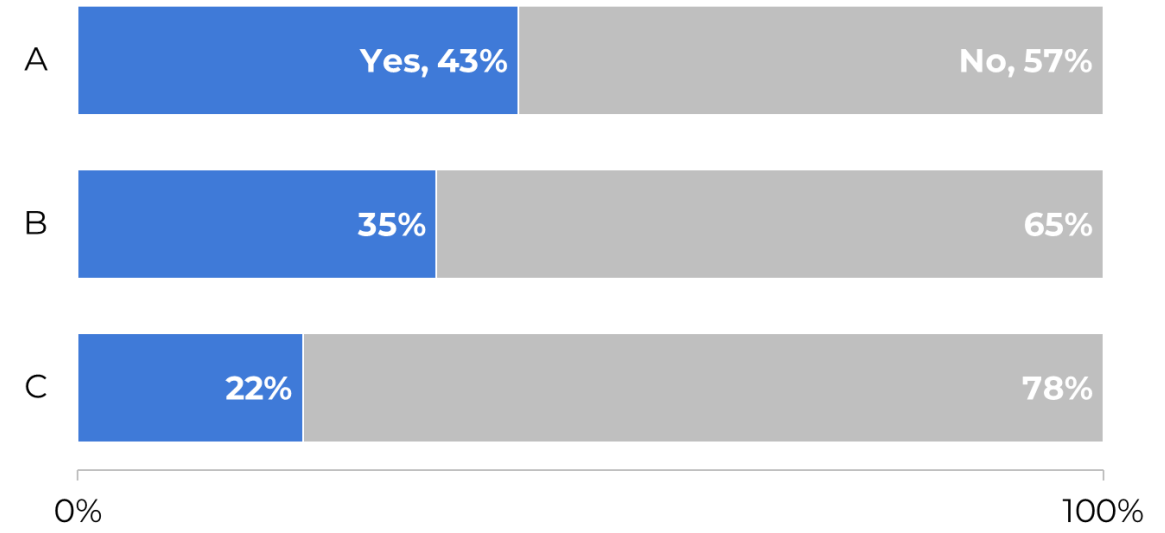
Category	Group 1	Group 2
A	43	49
B	35	40
C	22	28

Beware! Editing Needed

Software Defaults



Accessible & accessible



Great Graphs in Excel

Beginner

Overused Native Charts

- Pies & Donuts
- Bars & Columns
- Clustered Bars & Columns
- Stacked Bars & Columns
- Lines

Intermediate

Underused Native Charts

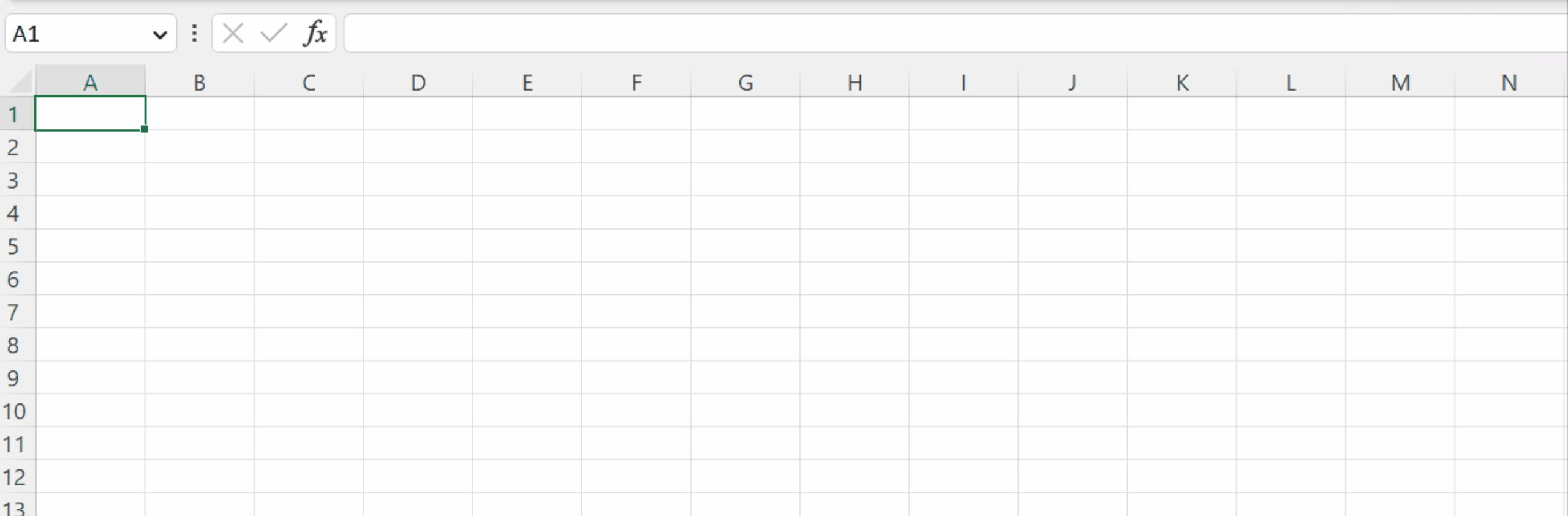
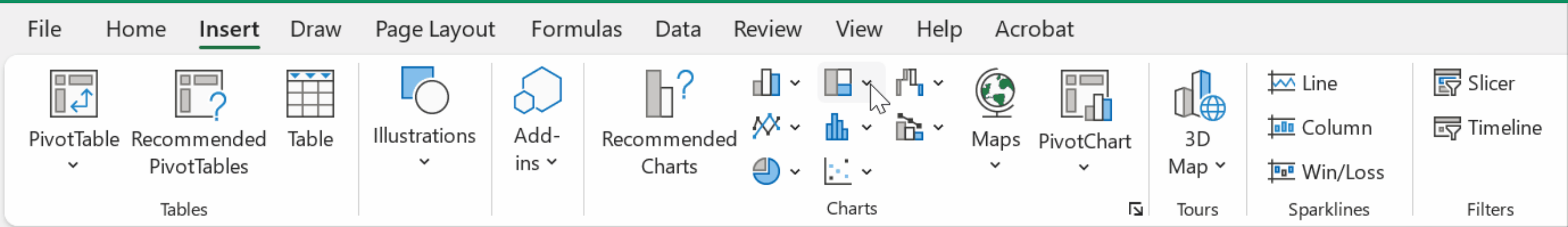
- Combo
- Overlapping Bars & Columns
- Area
- Slopes
- Small Multiples Lines
- Bumps
- Scatter Plots
- Bubbles
- Tree Maps
- Heat Maps
- Sunbursts

Advanced

Non-Native Charts

- B'Arcs
- Stream
- Waffles
- Small Multiples Bars
- Population Pyramids
- Diverging Stacked Bars
- Lollipops
- Dots
- Swarms
- Tile Grid Maps

Intermediate: Underused Native Charts

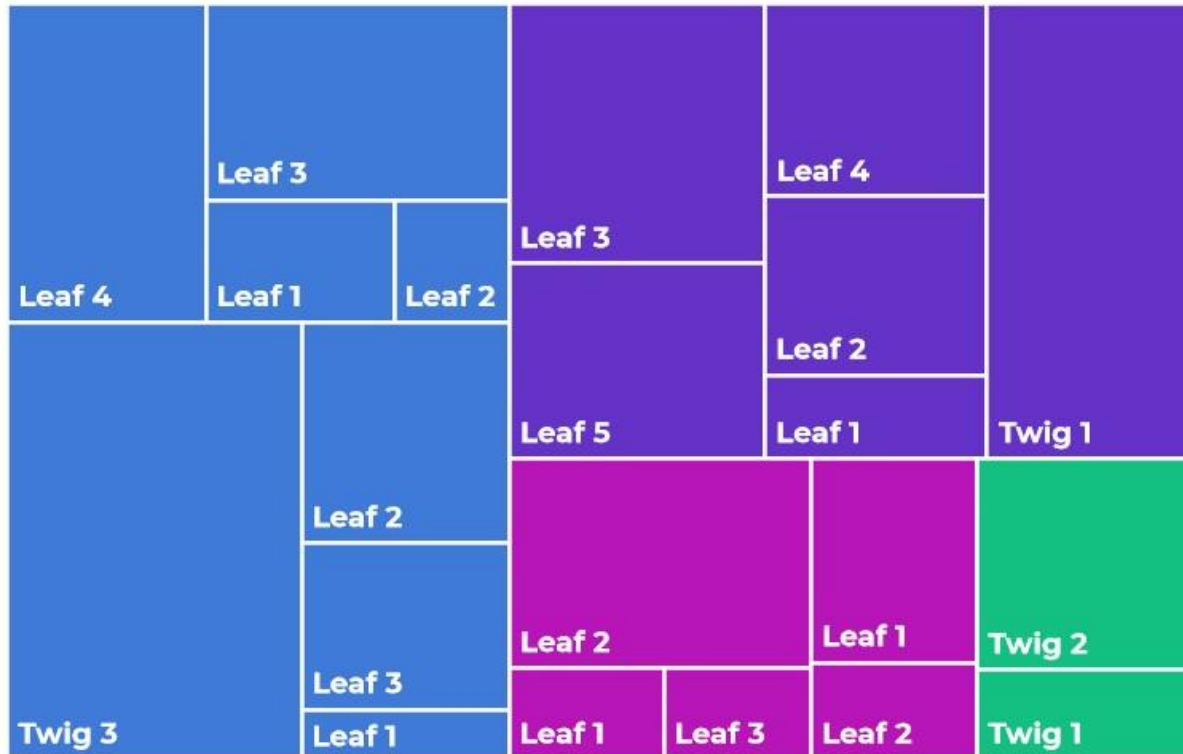


Tree Maps

Each  represents one of the leaves.

Branch 2
42% of the total

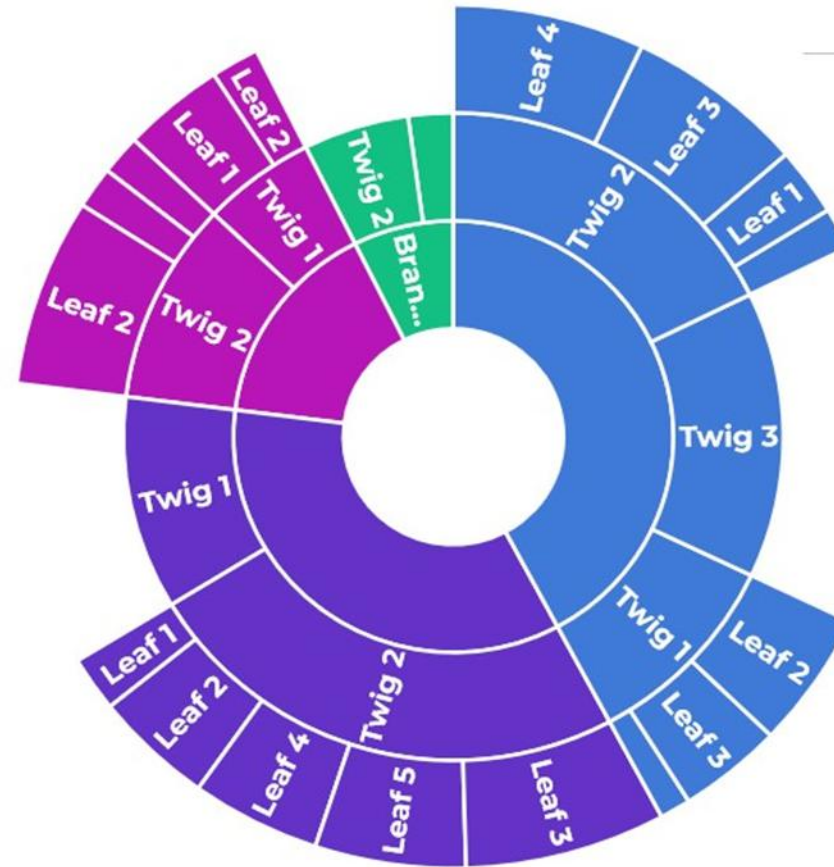
Branch 1
35% of the total



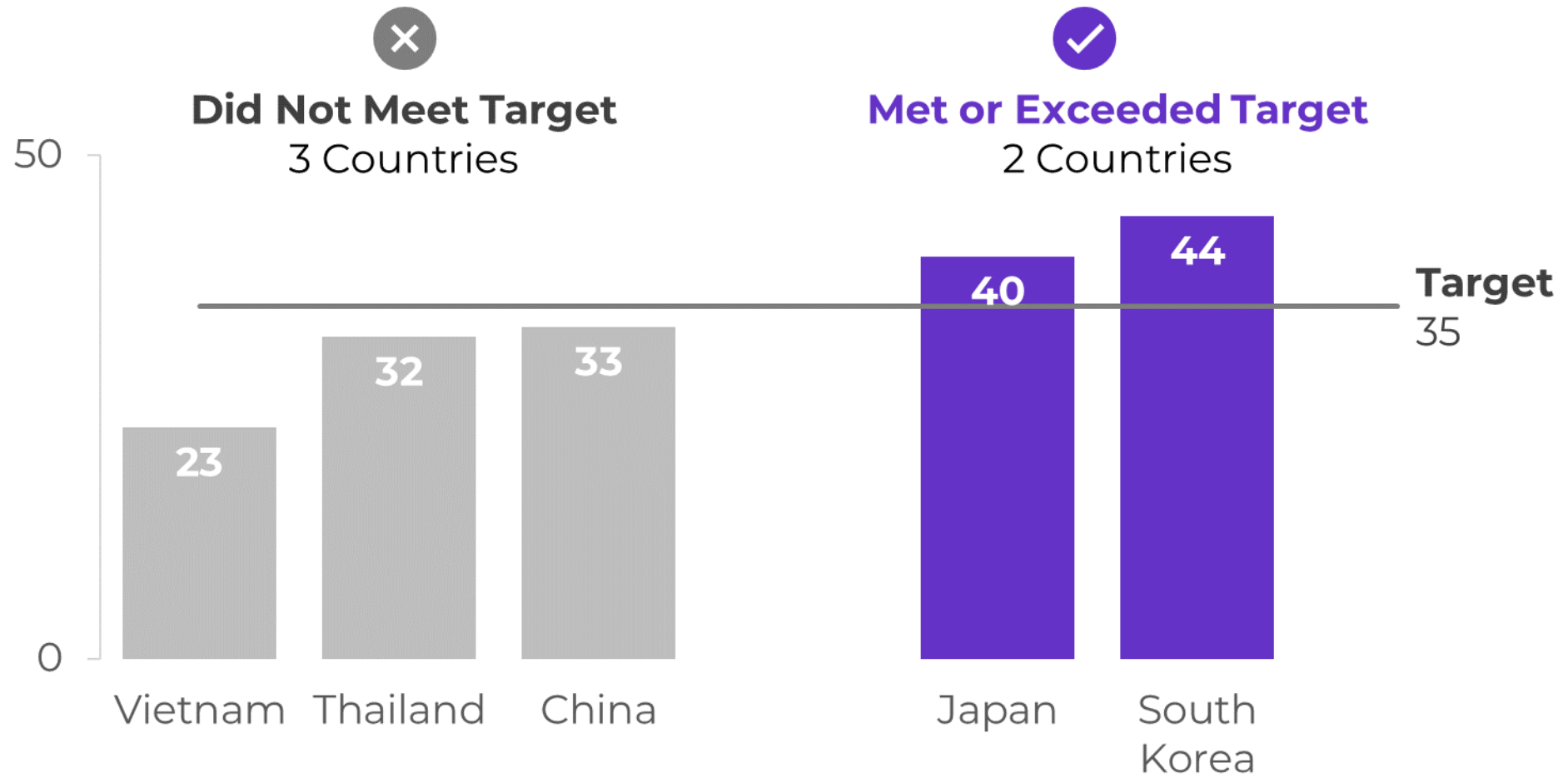
Branch 4
16% of the total

Branch 3
7% of the total

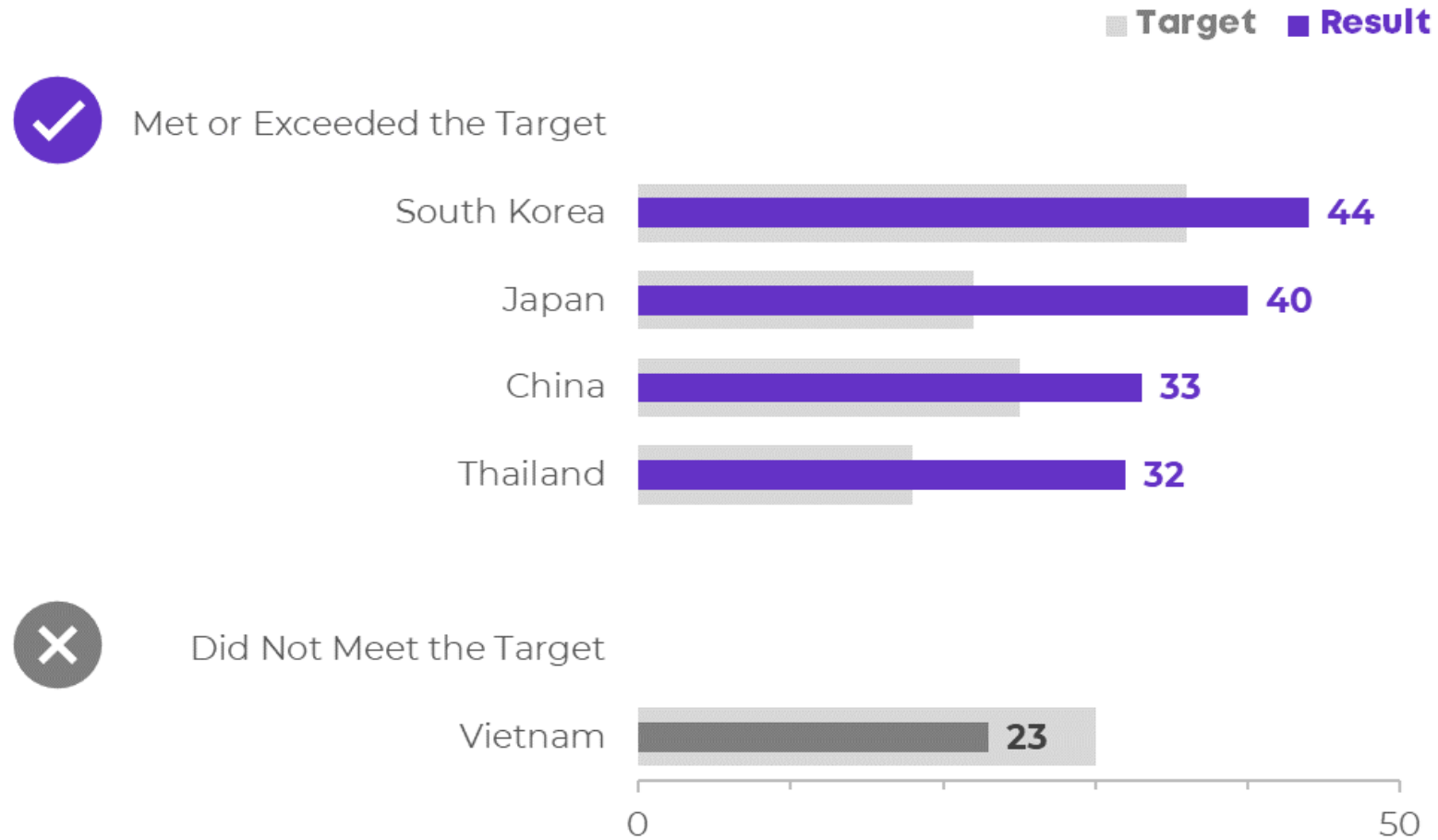
Sunburst Diagrams



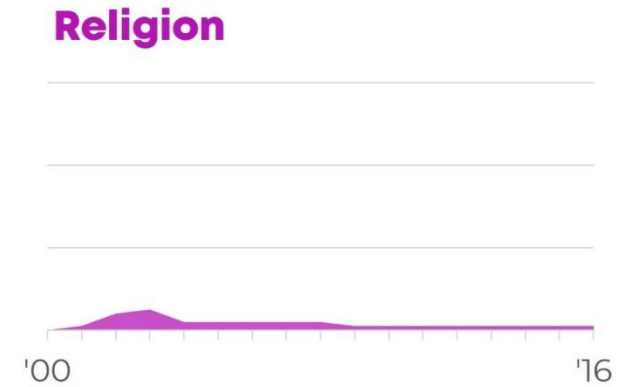
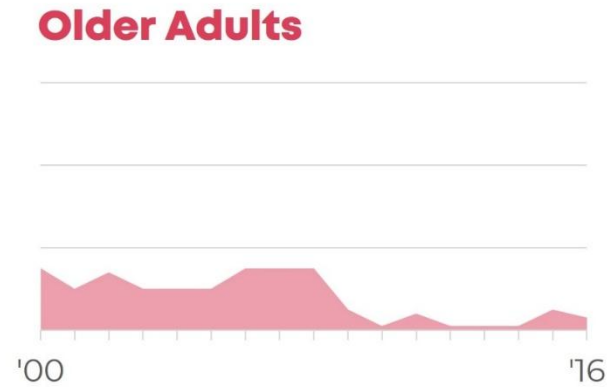
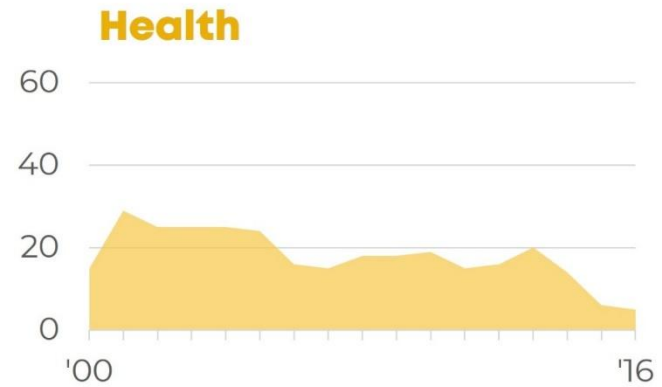
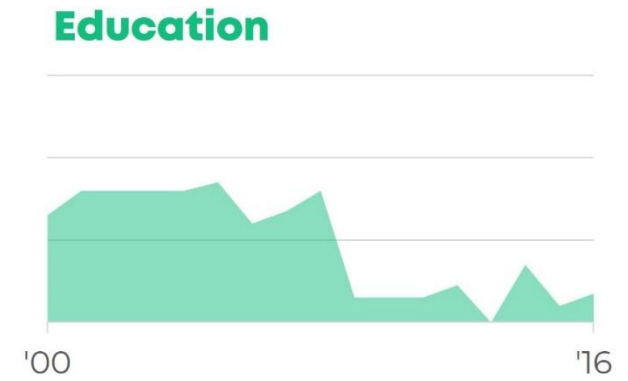
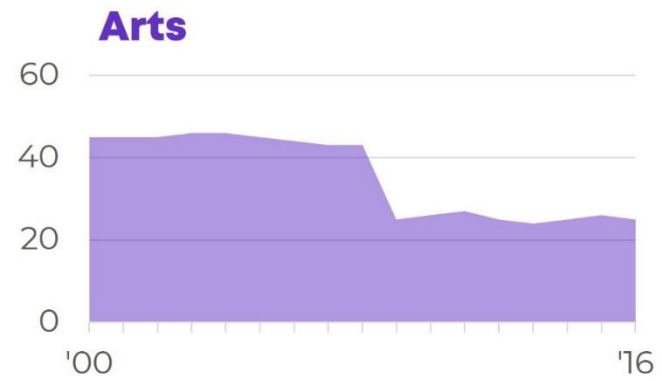
Branch 2 makes up 42% of the entire project.



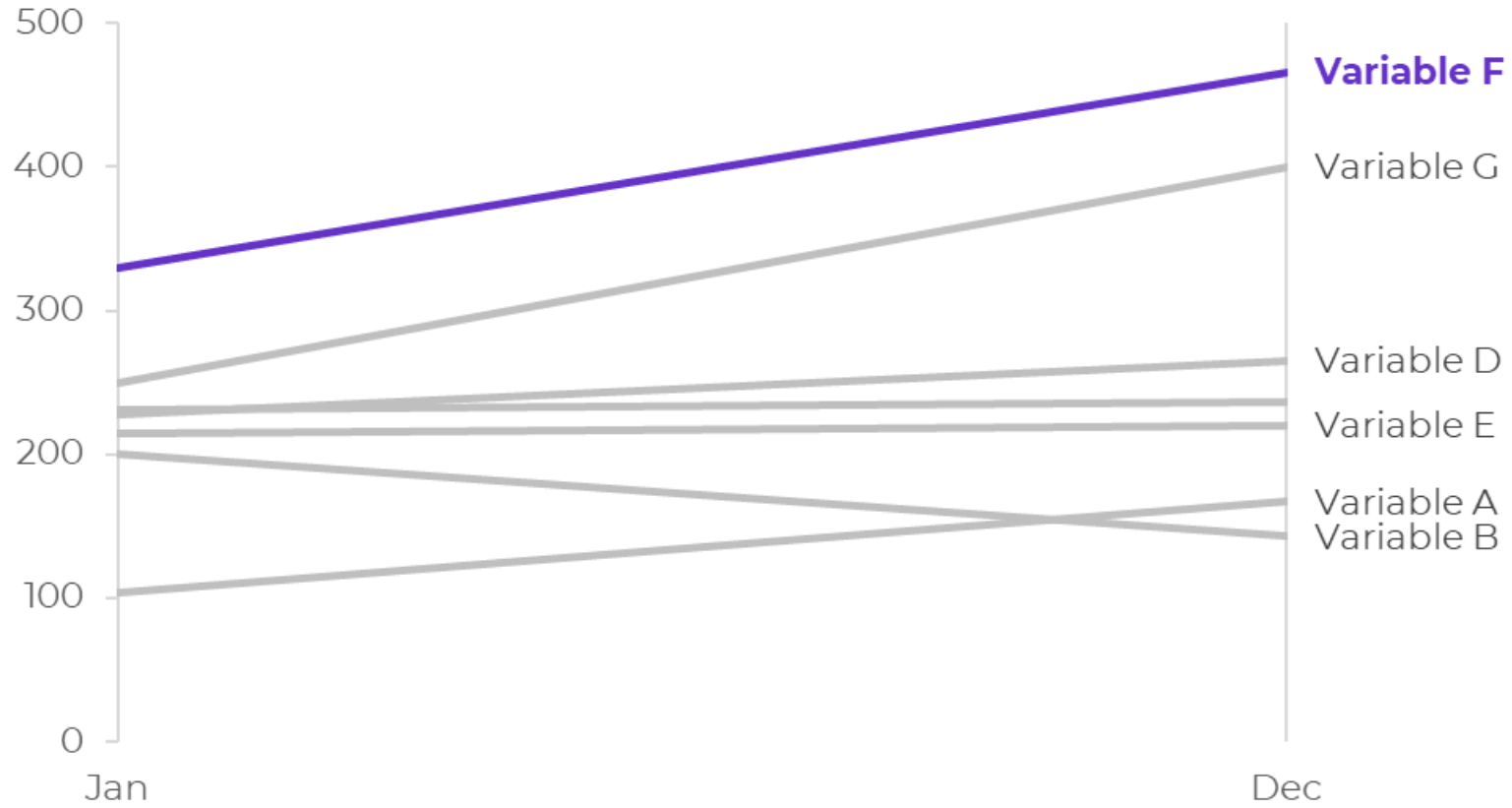
Overlapping



Area



Slopes



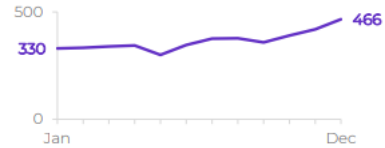
Small Multiples Lines

Layout B

Use this space to write a few sentences. You might define the variables, talk about a key finding, etc. Aim for about this much text. Be concise! Use this space to write a few sentences. You might define the variables, talk about a key finding, etc. Aim for about this much text. Be concise! Use this space to write a few sentences. You might define the variables, talk about a key finding, etc. Aim for about this much text. Be concise!

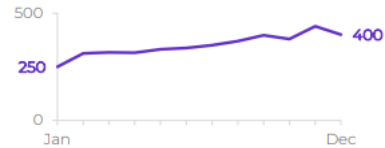
Variable F

This is where you can write a sentence or two about this particular graph. Write a definition; include a caveat; or highlight a key point from the graph.



Variable G

This is where you can write a sentence or two about this particular graph. Write a definition; include a caveat; or highlight a key point from the graph.



Variable D

This is where you can write a sentence or two about this particular graph. Write a definition; include a caveat; or highlight a key point from the graph.



Variable C

This is where you can write a sentence or two about this particular graph. Write a definition; include a caveat; or highlight a key point from the graph.



Variable E

This is where you can write a sentence or two about this particular graph. Write a definition; include a caveat; or highlight a key point from the graph.



Variable A

This is where you can write a sentence or two about this particular graph. Write a definition; include a caveat; or highlight a key point from the graph.



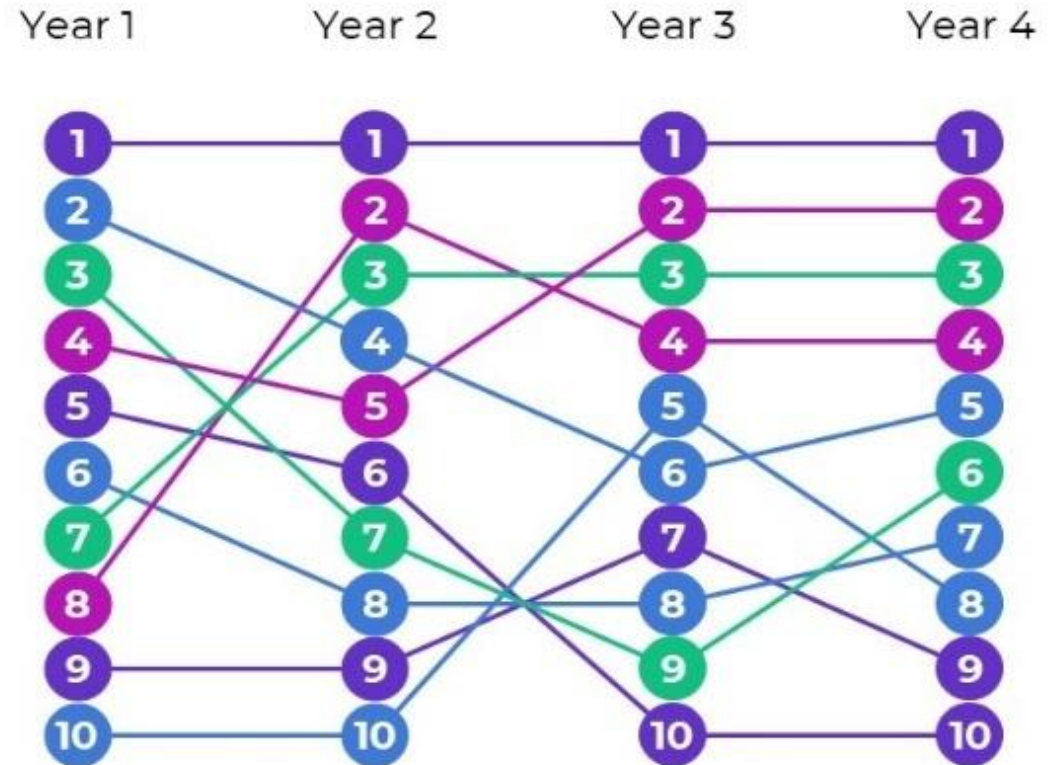
Variable B

This is where you can write a sentence or two about this particular graph. Write a definition; include a caveat; or highlight a key point from the graph.



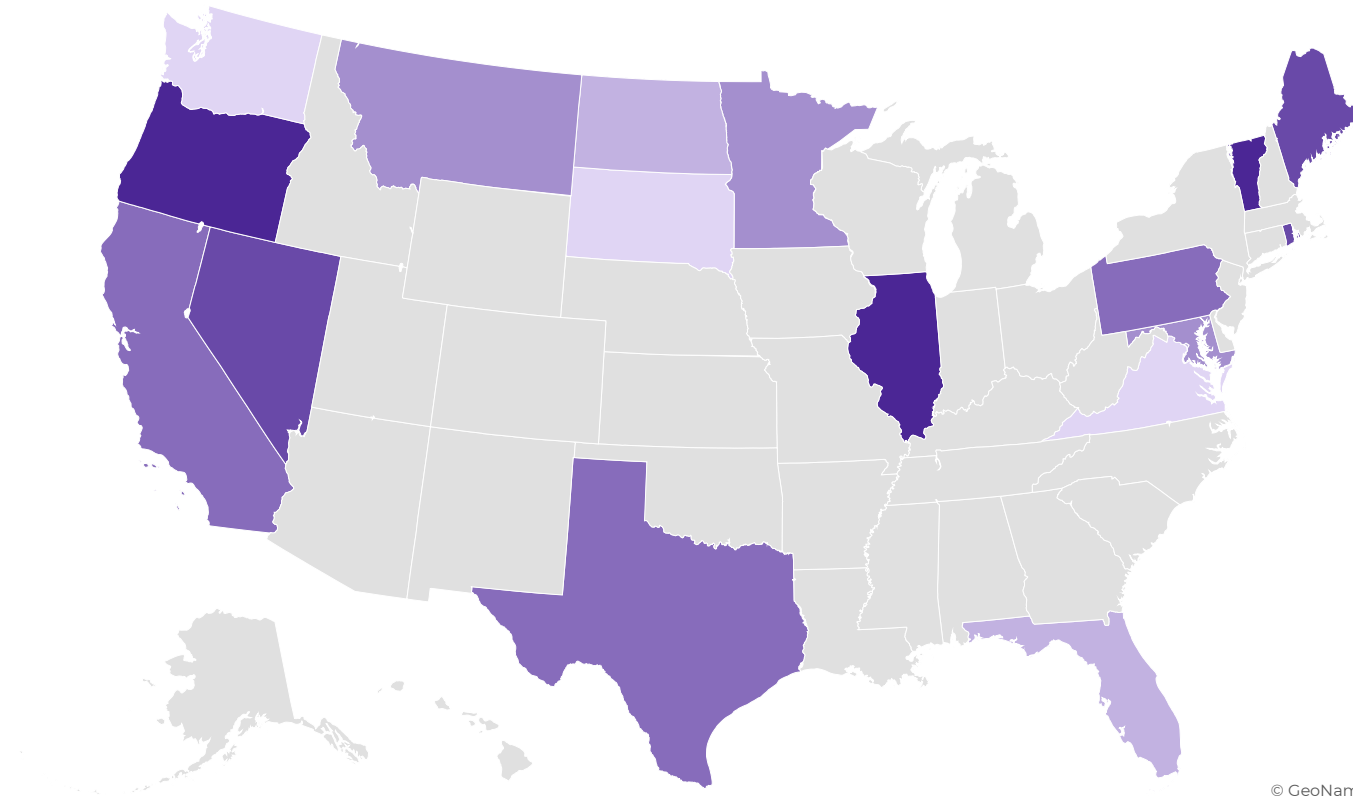
Bump Charts

Asynchronous Classroom Activities
Supplies and Materials
Curriculum Connection
Student Participation
Real Locations/Objects/Animals
Hands-On Activities
Choose Own STEM Providers
Ongoing Engagement w/ STEM Provider
Scientists/Experts
Rotation of STEM Providers



Heat Maps

Annual Spending Per Student  \$100 \$600



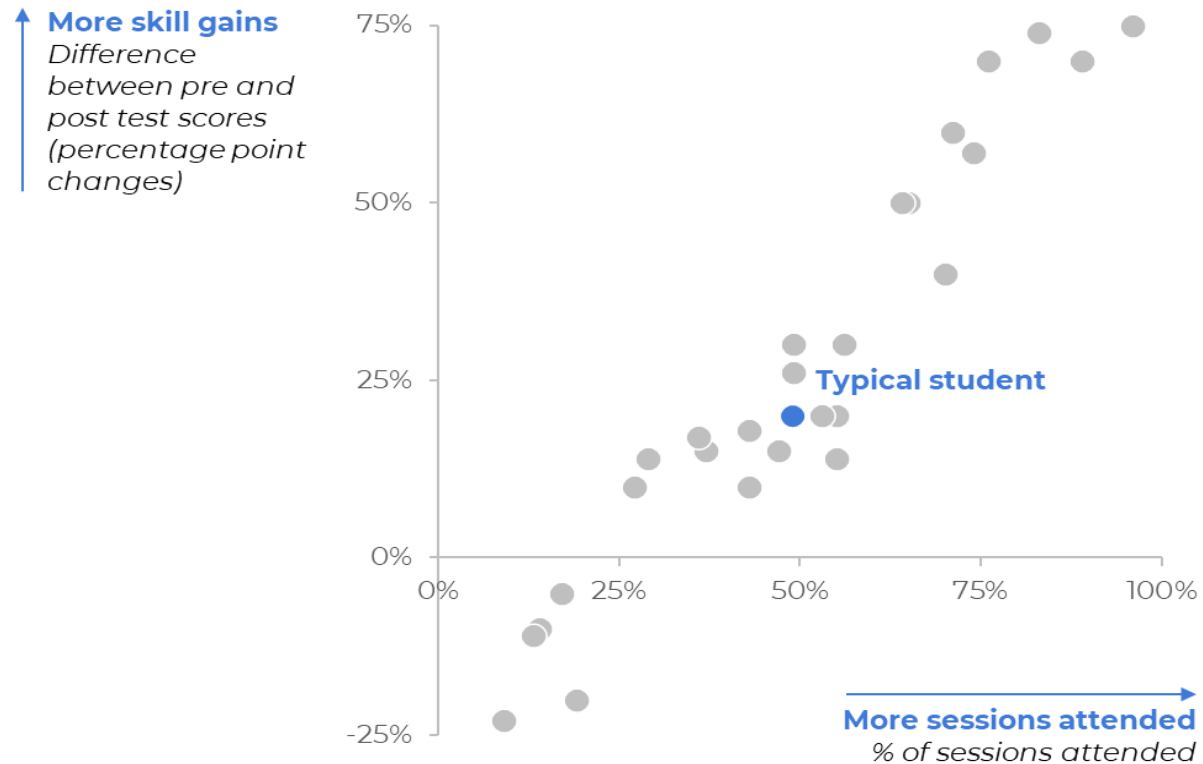
Powered by Bing
© GeoNames, Microsoft, TomTom

Scatter Plots

Students who Attended More Sessions Saw More Skills Gains

The **typical student** attended **half the sessions** and had a **20 percentage point increase in test scores** (median = 49% of sessions attended and 20 percentage point change from pre to post tests).

Each ● represents one student.



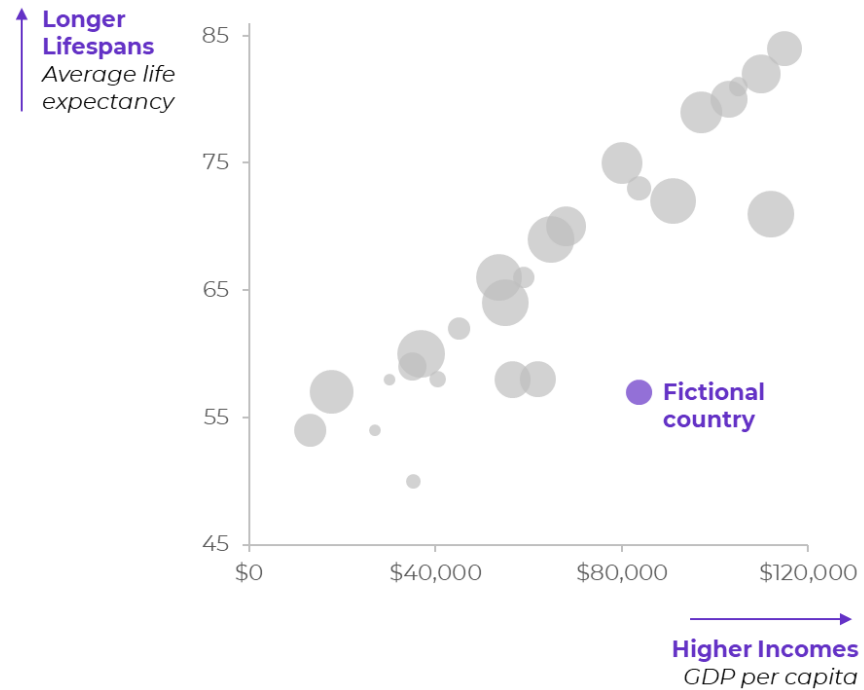
Bubble Charts

Countries with Higher Incomes Also Have Longer Lifespans

Average lifespans range from 50 to 84 years, and GDP per capita ranges from \$13,000 to \$115,000.

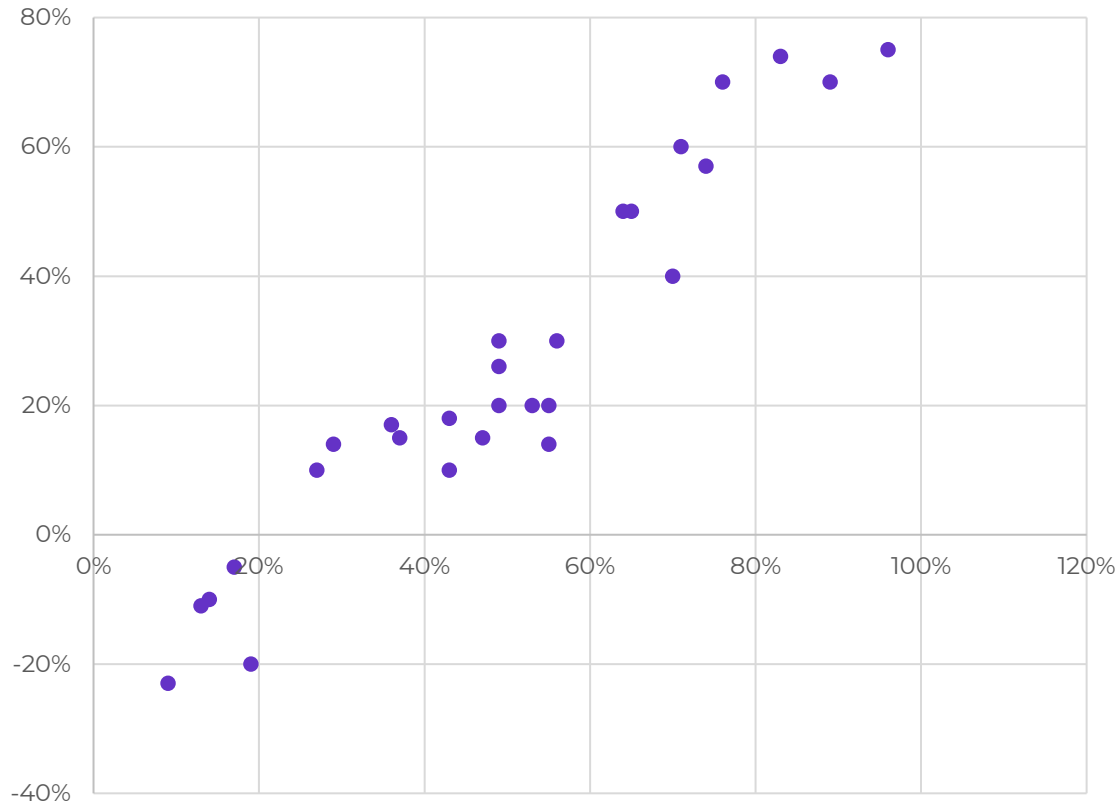
Each bubble ● represents one country.

Bubble size ● represents population size (in millions of people).



Beware! Editing Needed

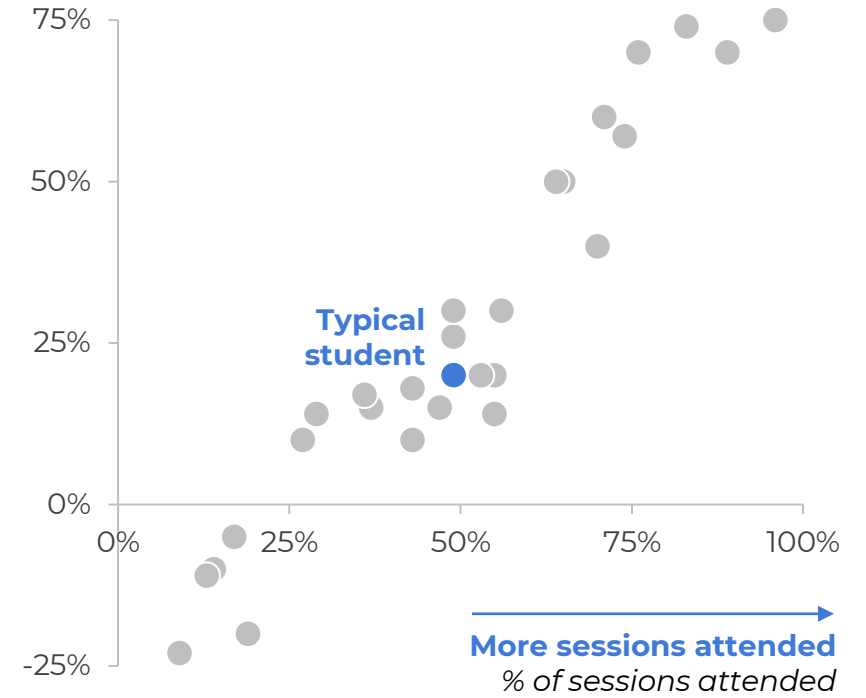
Software Defaults



Accessible & accessible

Each ● represents one student.

↑ **More skill gains**
Difference between pre and post test scores (percentage point changes)



Woohoo! Variety & Analytical Depth

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Maecenas porttitor congue massa. Fusce posuere, magna sed pulvinar ultricies, purus lectus malesuada libero, sit amet commodo magna eros quis urna. Nunc viverra imperdiet enim. Fusce est. Vivamus a tellus. Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Proin pharetra nonummy pede. Mauris et orci. Aenean nec lorem. In porttitor. Donec laoreet nonummy augue. Suspendisse dui purus, scelerisque at, vulputate vitae, pretium mattis, nunc. Mauris eget neque at sem venenatis eleifend. Ut nonummy. Fusce aliquet pede non pede.

Annual Spending Per Student \$100 \$6

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Did Not Meet Target 3 Countries Met or Exceeded Target 2 Countries

Country	Result	Target
Vietnam	23	35
Thailand	32	35
China	33	35
Japan	40	35
South Korea	44	35

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Suspendisse dapibus lorem pellentesque magna. Integer nulla. Donec blandit feugiat ligula. Donec hendrerit, felis et imperdiet euismod, purus ipsum pretium metus, in lacinia nulla nisi eget sapien.

Students who Attended More Sessions Saw More Skills Gains

The typical student attended half the sessions and had a 20 percentage point increase in test scores (median = 49% of sessions attended and 20 percentage point change from pre to post tests).

Each ● represents one student.

More skill gains Difference between pre and post test scores (percentage point changes)

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Maecenas porttitor congue massa. Fusce posuere, magna sed pulvinar ultricies, purus lectus malesuada libero, sit amet commodo magna eros quis urna. Nunc viverra imperdiet enim. Fusce est. Vivamus a tellus. Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Proin pharetra nonummy pede. Mauris et orci.

Aenean nec lorem. In porttitor. Donec laoreet nonummy augue.

Met or Exceeded the Target Target Result

Country	Result	Target
South Korea	44	35
Japan	40	35
China	33	35
Thailand	32	35
Vietnam	23	35

Did Not Meet the Target

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Maecenas porttitor congue massa. Fusce posuere, magna sed pulvinar ultricies, purus lectus malesuada libero, sit amet commodo magna eros quis urna. Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Proin pharetra nonummy pede. Mauris et orci.

Branch 3 makes up 42% of the entire project.

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(Ctrl)

Great Graphs in Excel

Beginner

Overused Native Charts

- Pies & Donuts
- Bars & Columns
- Clustered Bars & Columns
- Stacked Bars & Columns
- Lines

Intermediate

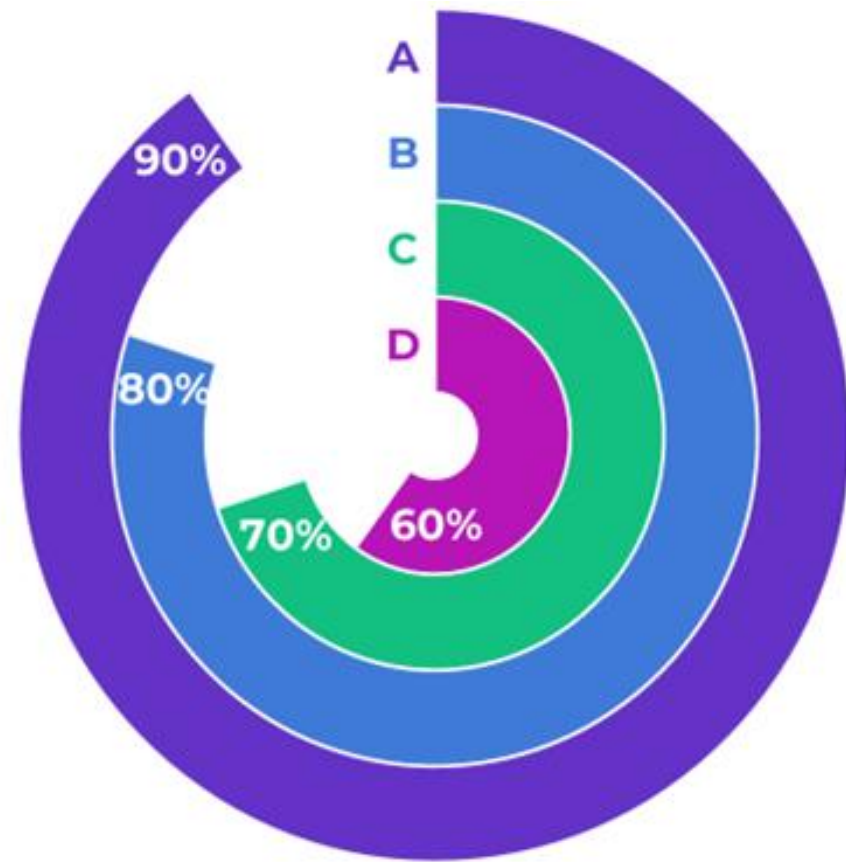
Underused Native Charts

- Combo
- Overlapping Bars & Columns
- Area
- Slopes
- Small Multiples Lines
- Bumps
- Scatter Plots
- Bubbles
- Tree Maps
- Heat Maps
- Sunbursts

Advanced

Non-Native Charts

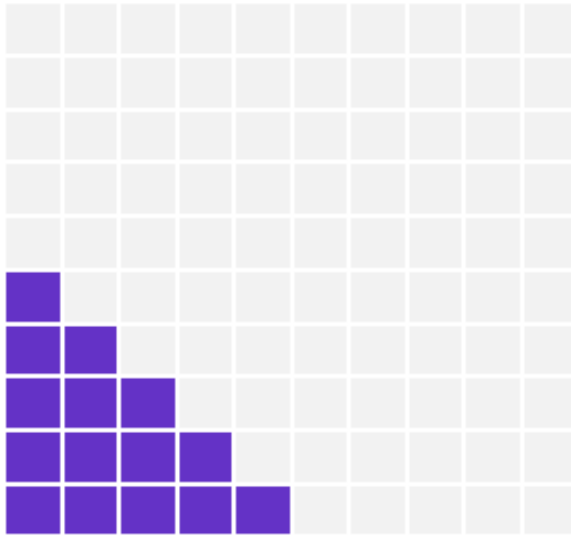
- B'Arcs
- Stream
- Waffles
- Small Multiples Bars
- Population Pyramids
- Diverging Stacked Bars
- Lollipops
- Dots
- Swarms
- Tile Grid Maps



Waffles

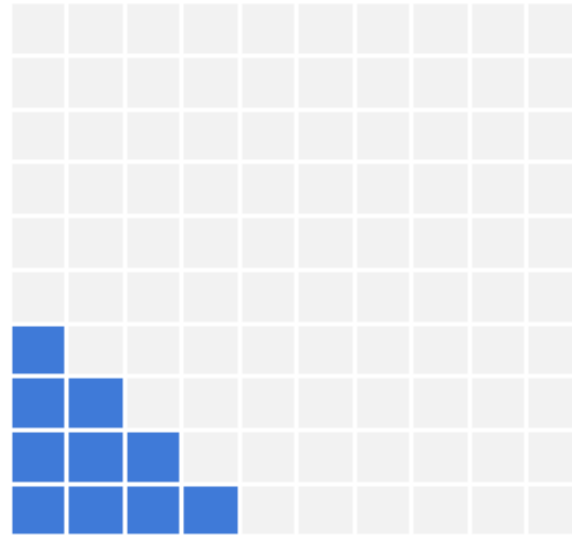
15%

of Group A did xyz.



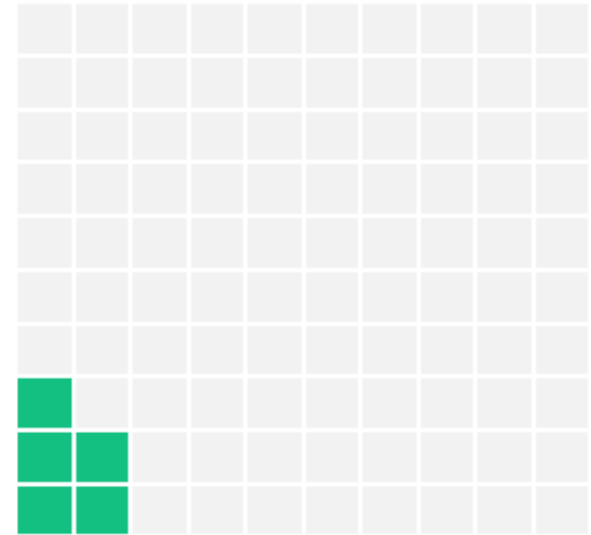
10%

of Group B did xyz.

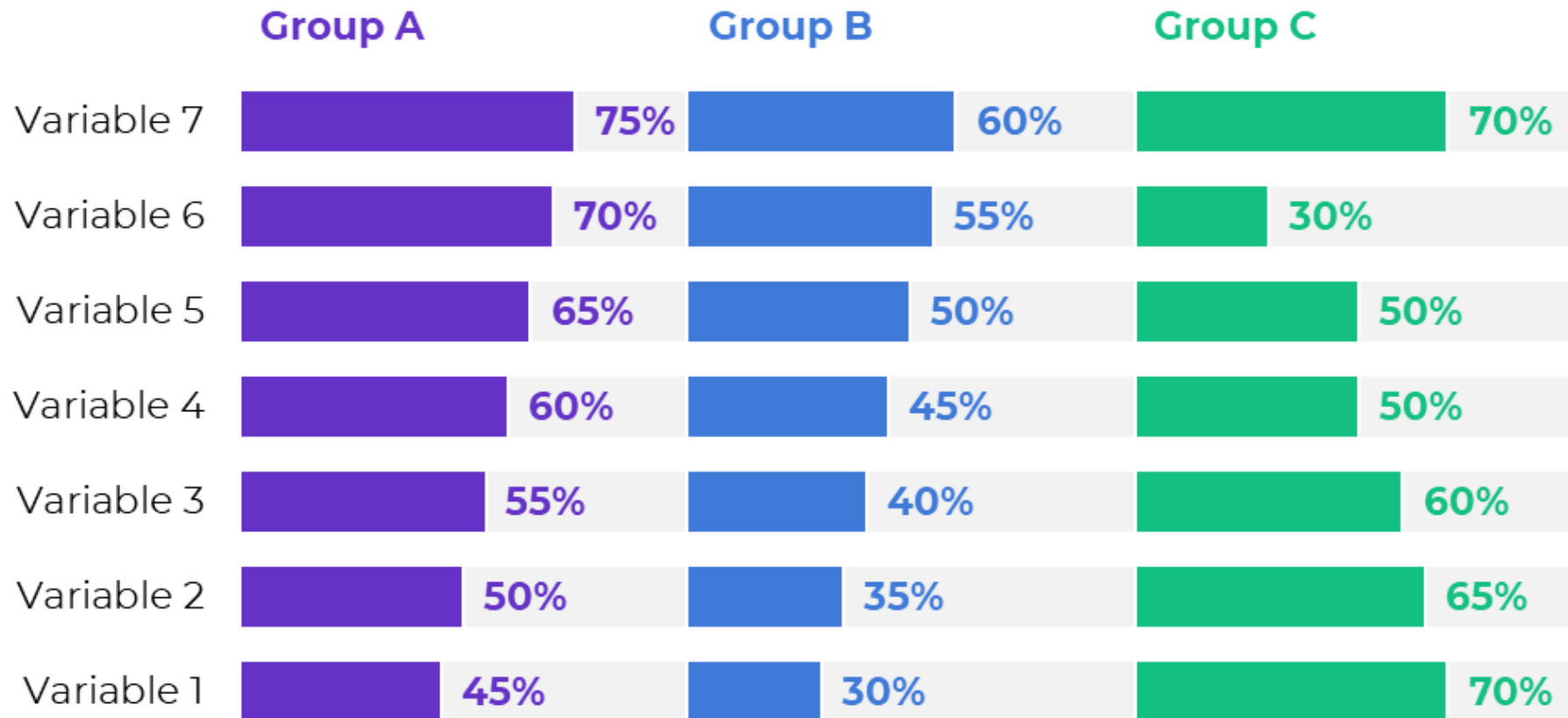


5%

of Group C did xyz.



Small Multiples Bars



Diverging Stacked Bars



Strongly Agree | Agree | Disagree | Strongly Disagree

The instructor had a positive influence on me.



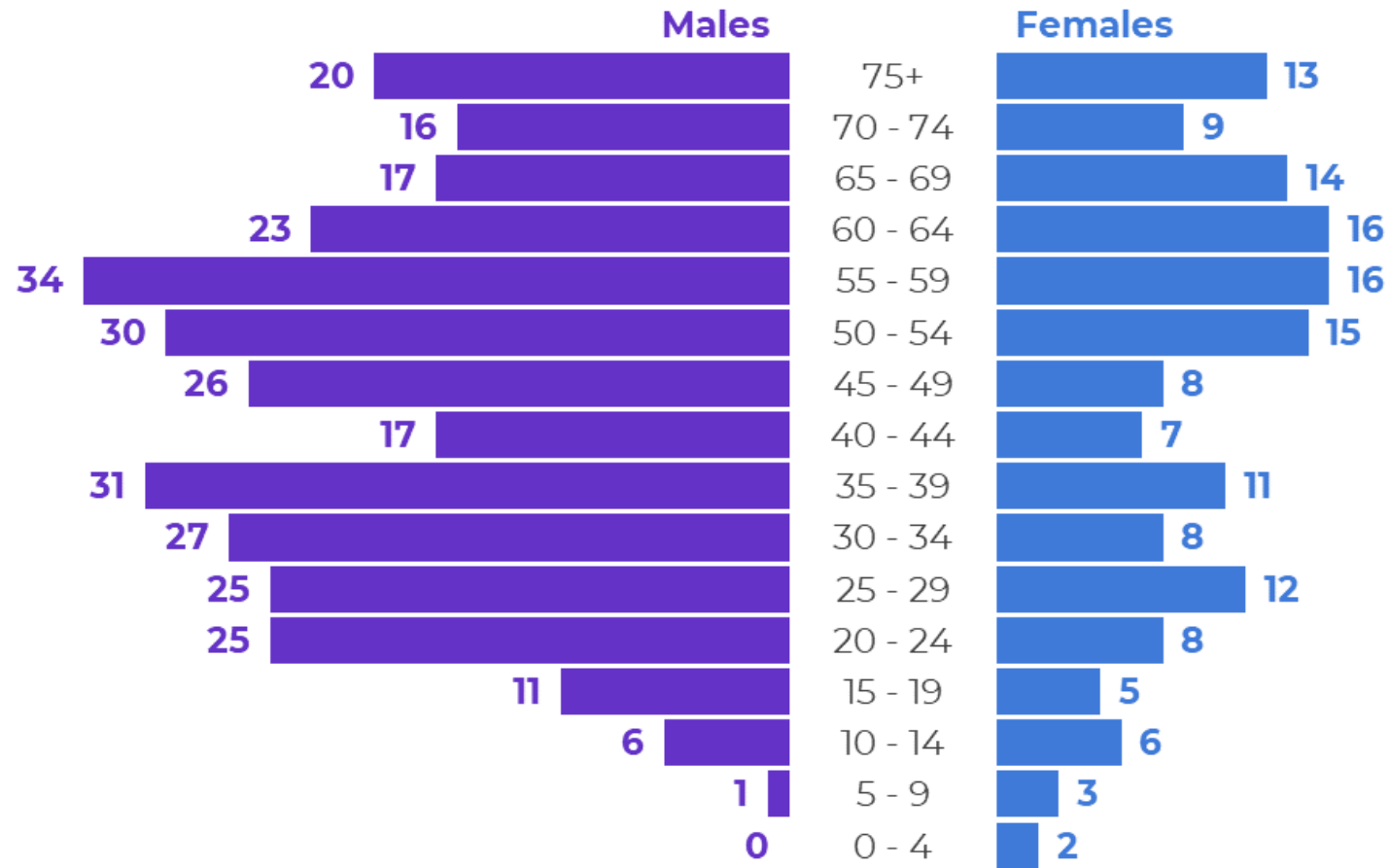
I would recommend this course to others.



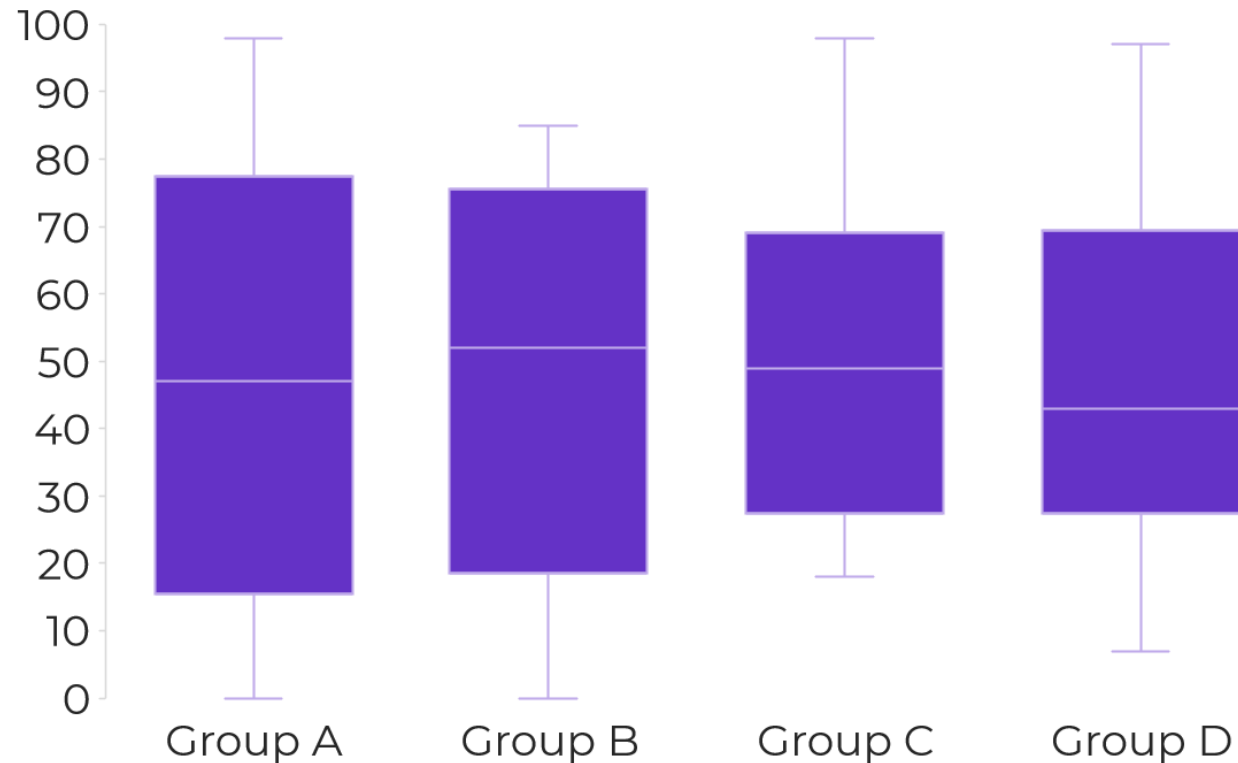
I learned a lot in this course.



Population Pyramids



Box and Whisker



How to read this chart:

Highest score per group (max)

Q3

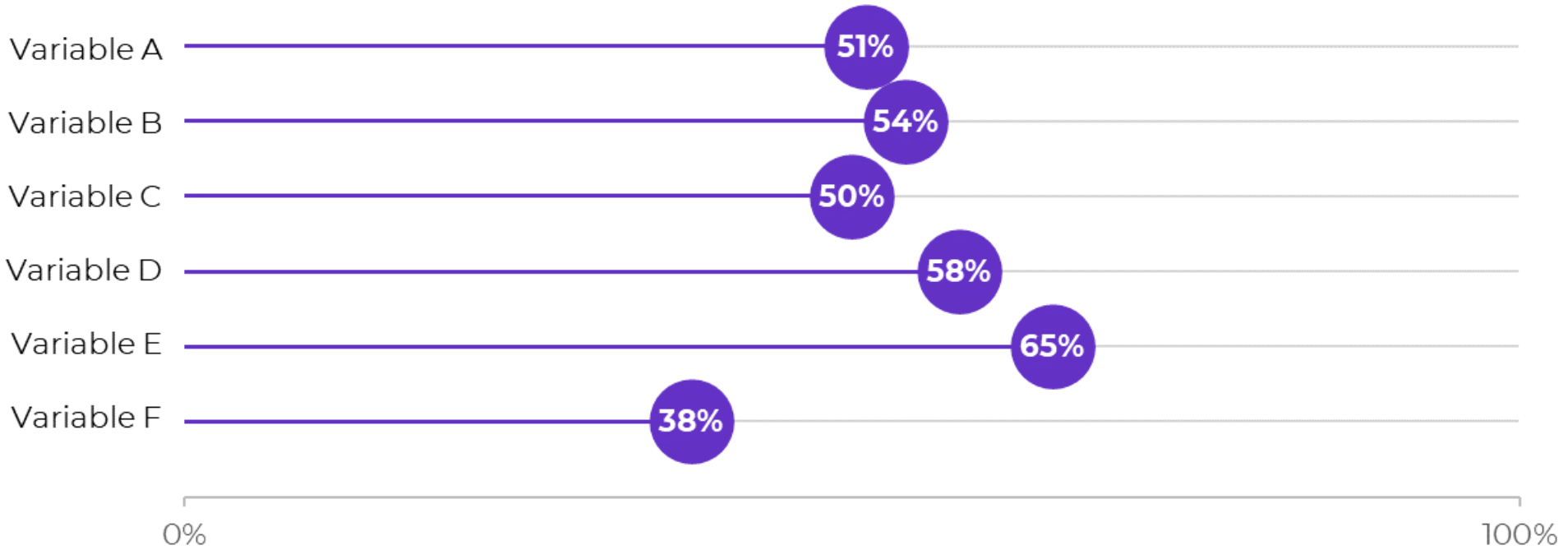
*Middle value
(median)*

Q1

Lowest score per group (min)

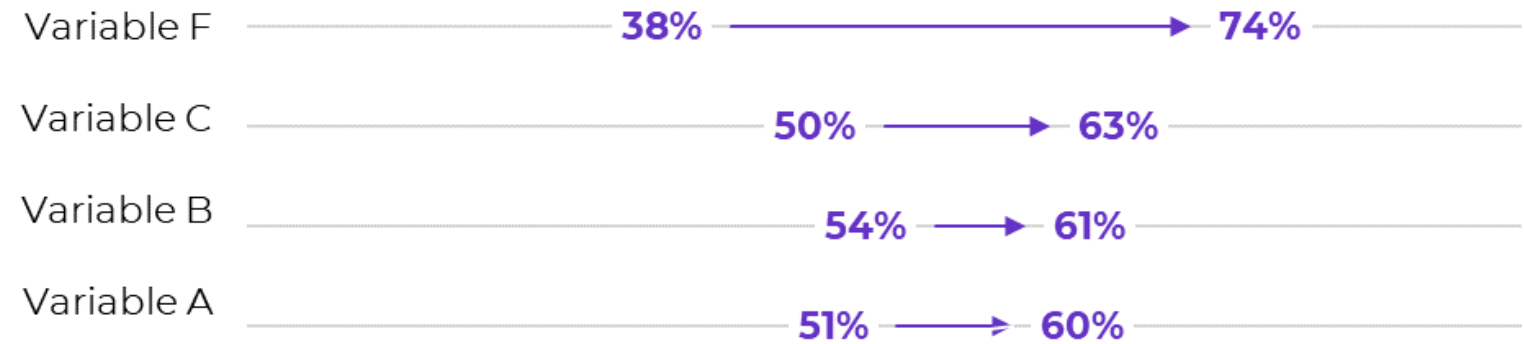
*Half the people
scored in this range*

Lollipops

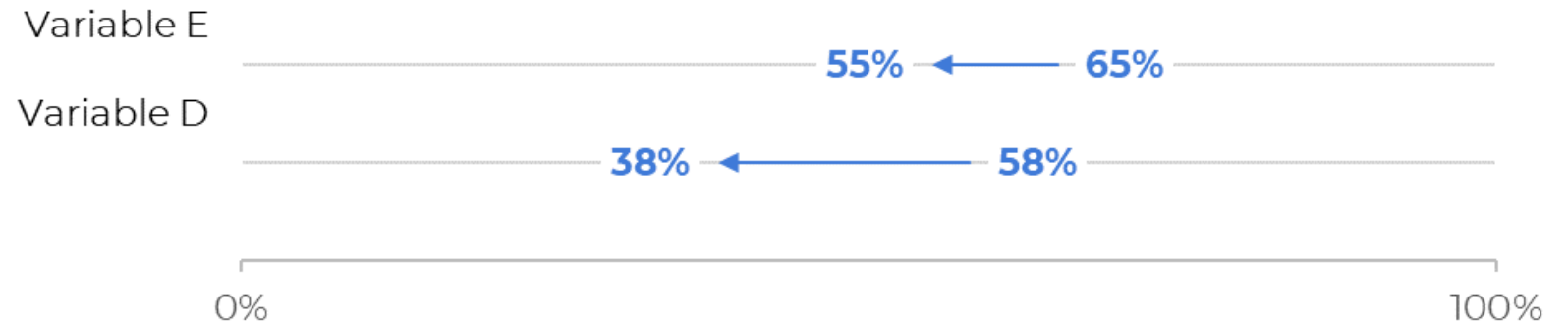


Dot Plots

→ **Increases**
from Year 1
to Year 2



← **Decreases**
from Year 1
to Year 2



0%

100%

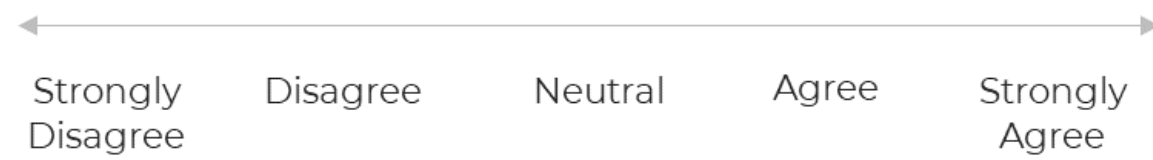
Swarm

Each ● represents one of the survey respondents.

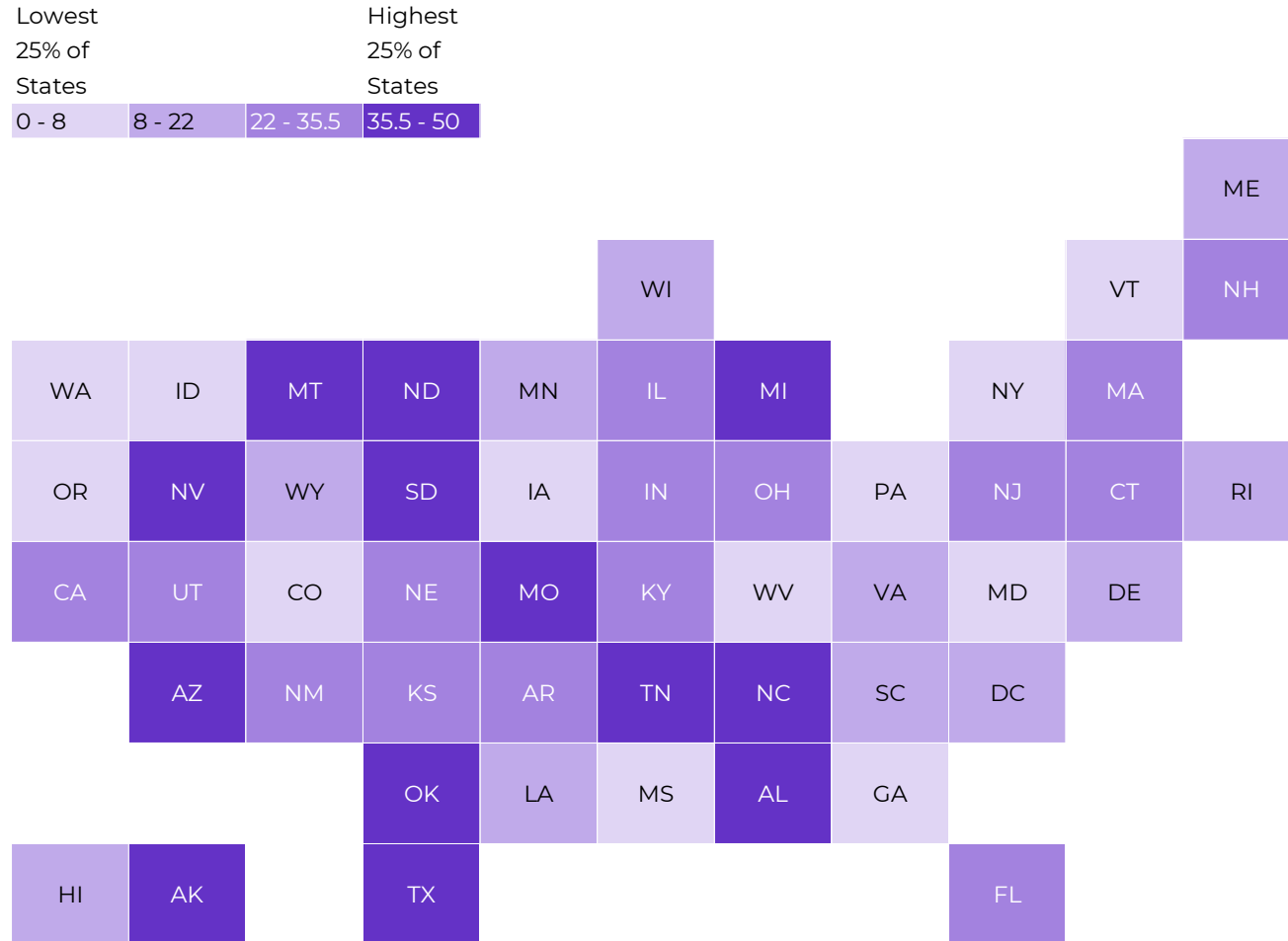
Treatment Group
(50 people)



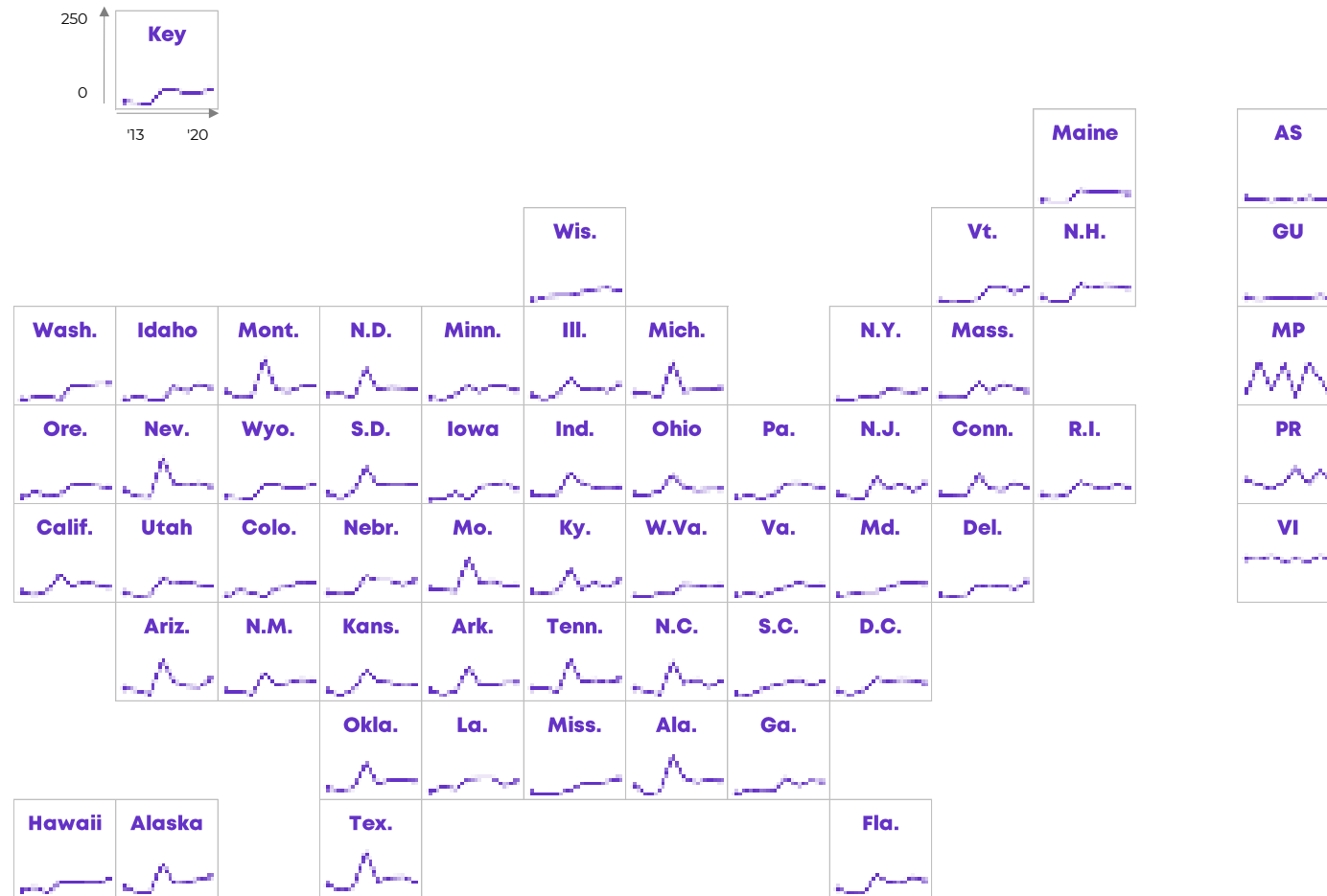
Control Group
(50 people)



Tile Grid Heat Maps



Tile Grid Trendline Maps

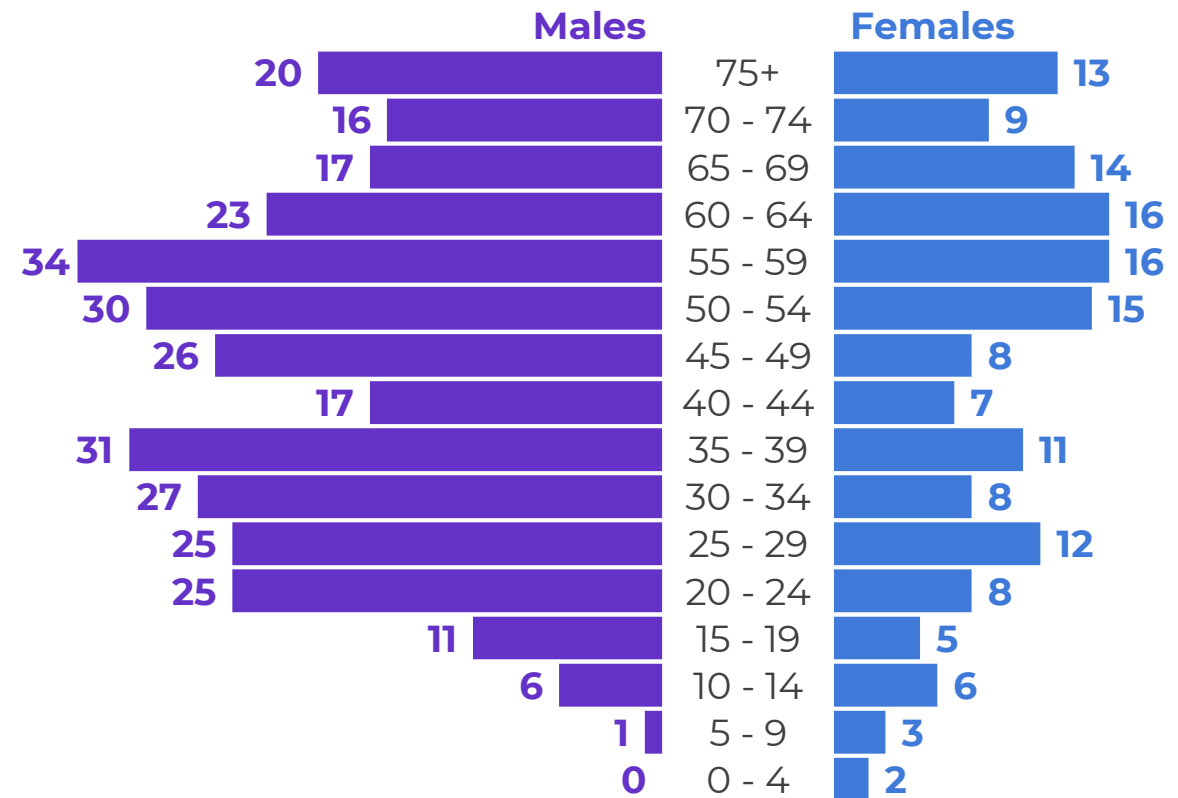
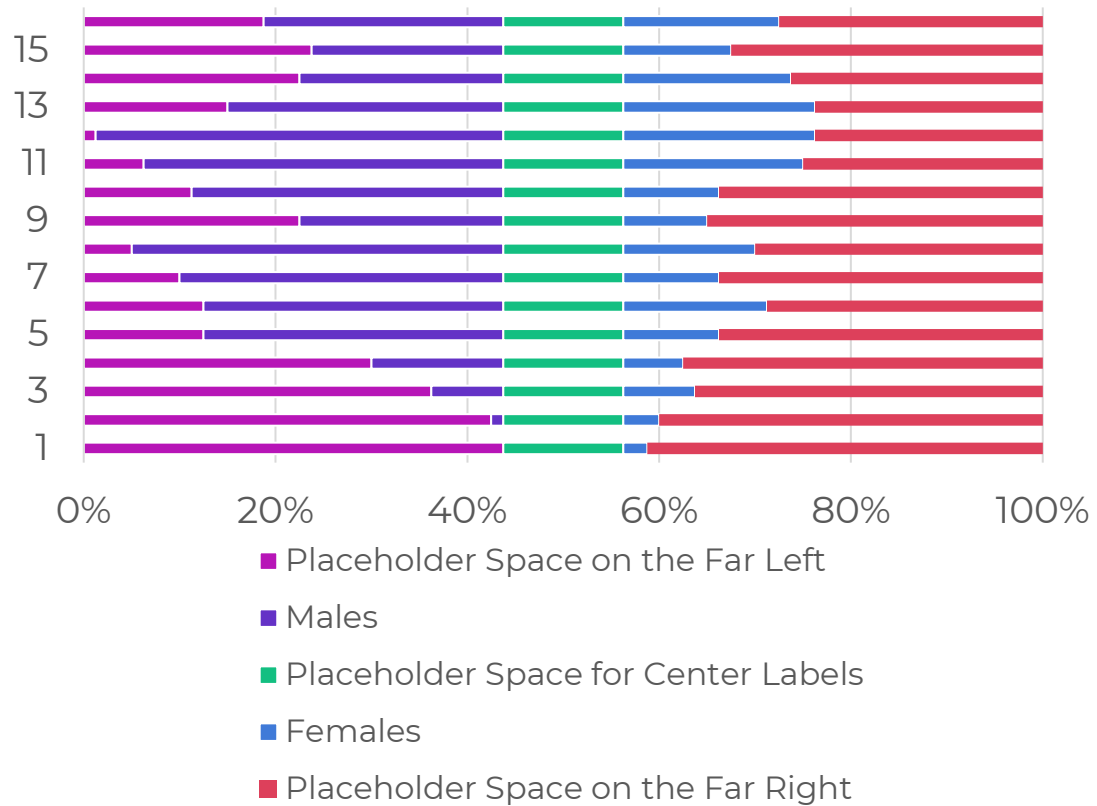


Beware! Disguises Needed

Insert One Chart Type...

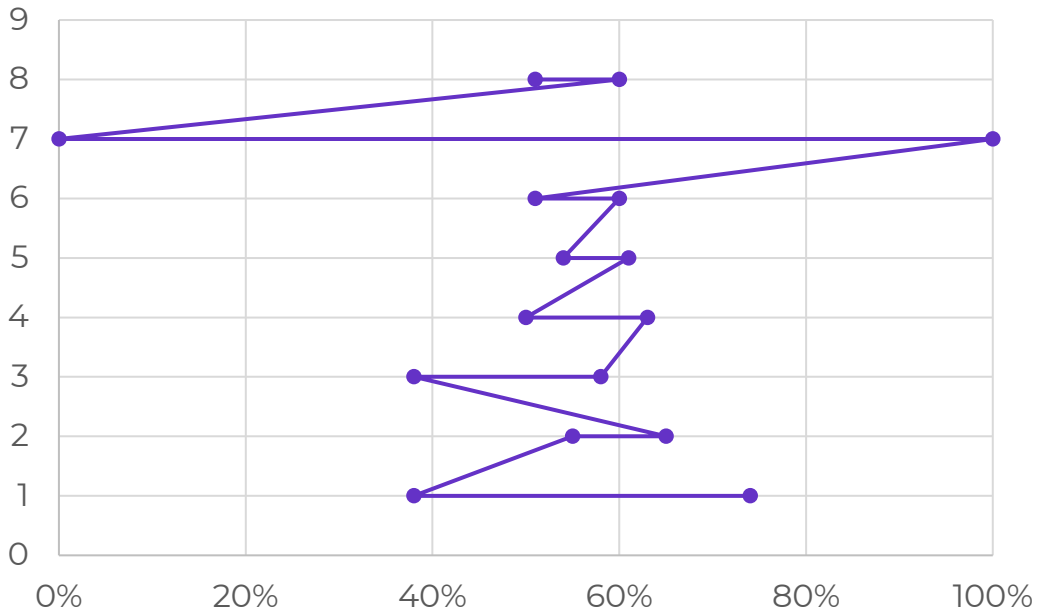


...and Disguise It As Another Chart



Beware! Disguises Needed

Insert One Chart Type...



...and Disguise It As Another Chart



Increases
from Year 1
to Year 2



Decreases
from Year 1
to Year 2

Variable F — 38% —————> 74%

Variable C — 50% —————> 63%

Variable B — 54% —————> 61%

Variable A — 51% —————> 60%

Variable E — 55% <----- 65%

Variable D — 38% <----- 58%

0%

100%

Great Graphs in Excel

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Non-Native Charts

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- Stream
- Waffles
- Small Multiples Bars
- Population Pyramids
- Diverging Stacked Bars
- Lollipops
- Dots
- Swarms
- Tile Grid Maps



Interactive Dashboards

Demographic Data

This dashboard shows demographic data about our participants over the past fiscal year.

Explore

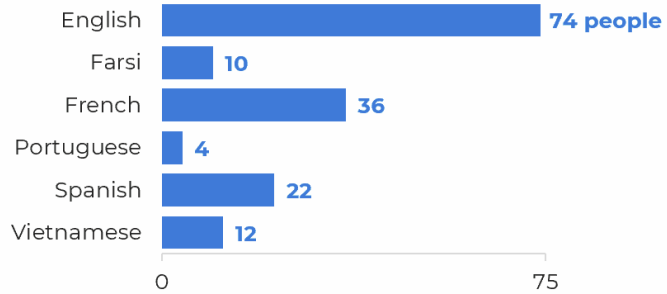
Use the filters to explore the data.

Program Site  

- Site A
- Site B
- Site C

Primary Language Spoken

English is the most common language at this site(s).



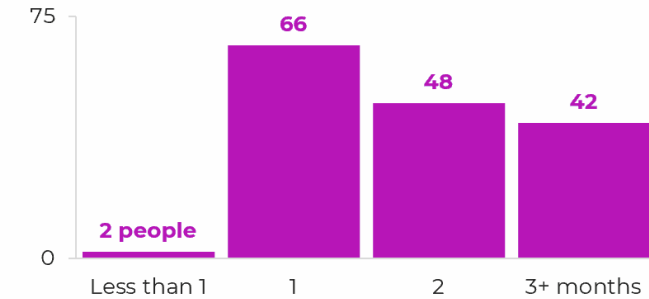
Household Income

70 people at this site(s) (44%) live in households with incomes over \$100,000.



Months in Program

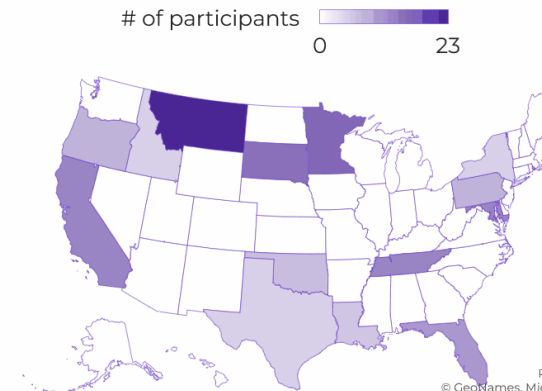
42 people have been in the program for 3 months or longer.



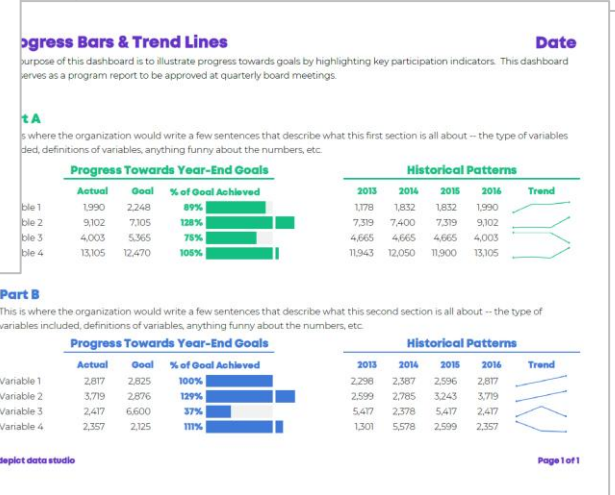
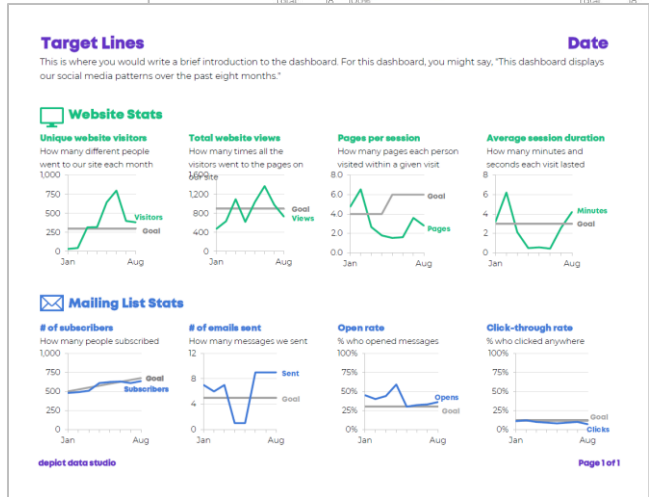
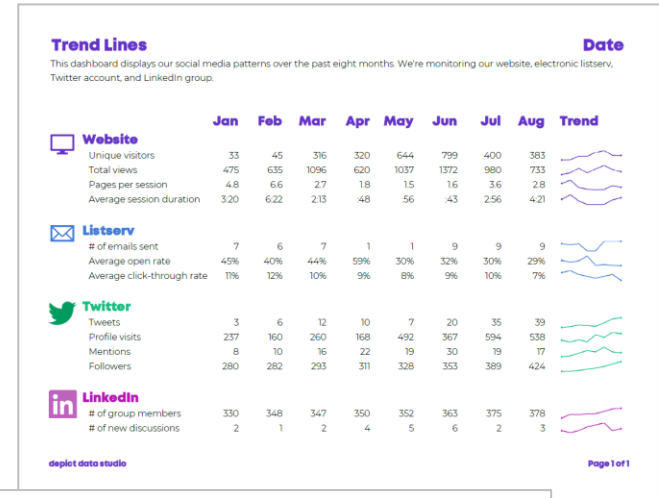
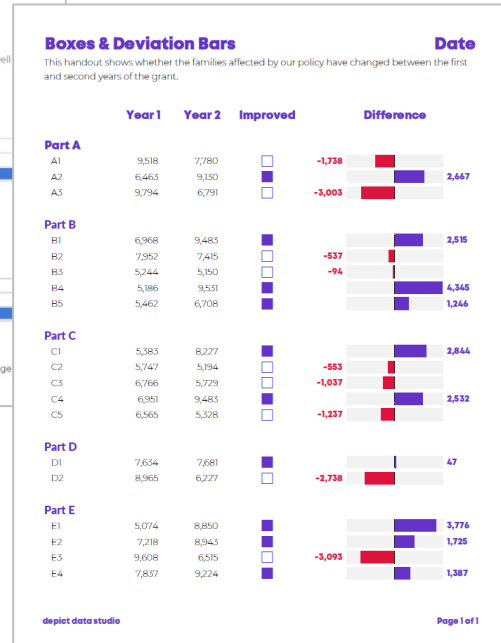
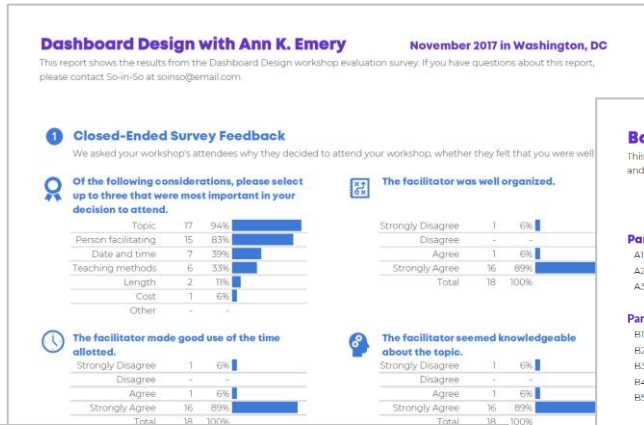
Residence

Participants live in 14 different states.

23 people are from Montana—that's 16% of participants at this site(s).



Static Dashboards



Static Dashboards

Communications Dashboard

September 2021

This dashboard shows how we reach our members through our website, email listserv, Twitter account, and LinkedIn group. We update this dashboard each month and use it to discuss what types of improvements need to be made to our communications strategy.



Website

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Trend
Unique visitors	33	45	316	320	644	799	400	383	
Total views	475	635	1096	620	1037	1372	980	733	
Pages per session	4.8	6.6	2.7	1.8	1.5	1.6	3.6	2.8	
Session duration	3:20	6:22	2:13	:48	:56	:43	2:56	4:21	



Listsrv

# of emails sent	7	6	7	1	1	9	9	9	
Open rate	45%	40%	44%	59%	30%	32%	30%	29%	
Click-through rate	11%	12%	10%	9%	8%	9%	10%	7%	



Twitter

Tweets	3	6	12	10	7	20	35	39	
Profile visits	237	160	260	168	492	367	594	538	
Mentions	8	10	16	22	19	30	19	17	
Followers	280	282	293	311	328	353	389	424	



LinkedIn

# of group members	330	348	347	350	352	363	375	378	
# of new discussions	2	1	2	4	5	6	2	3	