Framing the Data Story: What’s Your Sticky?

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Before We Get Started...

Please take a moment to reflect on the following questions:

• How do you typically communicate research findings to your campus community?

• What are participant reactions (and actions) to these research products?
Researchers and Planners are...

- Data stewards
- Skilled at finding needles in a haystack
- Good at helping people connect the dots
- Able to see the big picture and fine details

Researchers must also be good storytellers
The Functions of Presentations

- To inform
- To empower decision makers
- To engage in conversation
- To facilitate decision-making
- To get audience members to think differently about a topic
- To provoke audience reflection on a topic
Developing messages that stick

People tend to have highest levels of engagement & retention when the story is:

1. Simple
   - Can be easily summarize in a sentence.

2. Unexpected
   - Provides viewers a drama they want to retell

3. Concrete
   - has few abstractions

4. Plausible
   - passes the sniff test

5. Emotional
   - speaks to things humans care about

Pause to Reflect:
Think, Pair, Share

• For what purpose do you typically prepare presentations?

• What tools do you use (e.g., software, text, visuals)?
Thought for Consideration

Informative Presentations Alone ≠ Engagement & Decision-Making

Intentionally Designed Presentations+Purpose = Data-informed decision-making
How Can We Reframe Our Presentations?

• Bring together elements of your presentation to tell a story

✓ Before preparing a presentation, consider:
✓ The audience
✓ The message
✓ The purpose/objective
✓ The desired outcome
Few’s 8 Design Principles

1. Simplify
2. Compare
3. Attend
4. Explore
5. View Diversely
6. Ask why
7. Be skeptical
8. Respond

For more, see Stephen Few’s Core Principles
Data “don’t” speak

Understand
Visualize
Process
Engage
Use
## Communicating the Metrics

<table>
<thead>
<tr>
<th>Simplicity</th>
<th>Complexity</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>80% Rule</strong>&lt;br&gt;-Highest group-</td>
<td><strong>80% Rule</strong>&lt;br&gt;-Overall rate-</td>
</tr>
<tr>
<td><strong>Pros</strong></td>
<td><strong>Cons</strong></td>
</tr>
<tr>
<td>Easy to understand&lt;br&gt;Clear cut-off/point at which gap is considered DI</td>
<td>Selection of an appropriate reference group is not always obvious (highest performing may not be largest as originally intended)&lt;br&gt;Overall rate may change from year to year</td>
</tr>
</tbody>
</table>

### Metrics

1. **80% Rule**
   - **Pros**
     - Easy to understand
     - Clear cut-off/point at which gap is considered DI
   - **Cons**
     - Selection of an appropriate reference group is not always obvious (highest performing may not be largest as originally intended)
     - Overall rate may change from year to year

2. **80% Rule**
   - **Pros**
     - Easy to understand
     - Clear cut-off/point at which gap is considered DI
     - Easy to identify comparison group
   - **Cons**
     - Overall rate may change from year to year

3. **Proportionality Index**
   - **Pros**
     - Flexibility for interpreting DI
     - Representation analysis takes all groups into account
   - **Cons**
     - No standard cutoff for determining DI
     - Selecting cut-offs can make it appear as if some groups are not impacted when equity gaps actually exist
Reading Result Charts

Rates of degree/cert completion per group

- Females had a 68% rate (compared to males who had a rate of 28%)

Red = 3 measures of DI
Orange = 2 measures of DI
Yellow = 1 measure of DI
Visualizations (noun):

• Portals that serve as interfaces to interpersonal engagement

• Provide situational awareness - Where you are and where you want to be

Why visuals?

How your brain divvies up tasks:

- Processing text: 80%
- Processing visual information: 15%
- Processing audio information: < 5%

# How We Often Put Tables Together

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>Enrolled</th>
<th>Retention Rate</th>
<th>Success Rate</th>
<th>Course GPA</th>
</tr>
</thead>
<tbody>
<tr>
<td>African American</td>
<td>300</td>
<td>87%</td>
<td>55%</td>
<td>2.12</td>
</tr>
<tr>
<td>American Indian</td>
<td>16</td>
<td>75%</td>
<td>63%</td>
<td>2.36</td>
</tr>
<tr>
<td>Asian</td>
<td></td>
<td></td>
<td></td>
<td>2.86</td>
</tr>
<tr>
<td>Filipino</td>
<td></td>
<td></td>
<td></td>
<td>2.50</td>
</tr>
<tr>
<td>Hispanic</td>
<td></td>
<td></td>
<td></td>
<td>2.32</td>
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<tr>
<td>Pacific Islander</td>
<td></td>
<td></td>
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<td>2.41</td>
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<tr>
<td>White</td>
<td></td>
<td></td>
<td></td>
<td>2.78</td>
</tr>
</tbody>
</table>

This is not generally the reaction we are looking for.
Tips for Improving Your Tables

• Leverage color
  – For college branding
  – To direct audience attention to where you want it
  – Gradient (for heat maps)

• Think about the purpose of the table
  – Is it descriptive? Comparative? Does it illustrate a progression of information?

• Put yourself in the shoes of your audience
# A Data Viz Table: Math Cohort Tracking – Starting in Fundamentals

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Fundamentals</td>
<td>1,863</td>
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<td>624</td>
<td>331</td>
<td>212</td>
<td>134</td>
<td>99</td>
</tr>
<tr>
<td>% of starting cohort</td>
<td>100%</td>
<td>65%</td>
<td>50%</td>
<td>33%</td>
<td>18%</td>
<td>11%</td>
<td>7%</td>
<td>5%</td>
</tr>
<tr>
<td>% from previous step</td>
<td>---</td>
<td>65%</td>
<td>77%</td>
<td>66%</td>
<td>53%</td>
<td>64%</td>
<td>63%</td>
<td>74%</td>
</tr>
</tbody>
</table>

*Note: Fundamentals = Math 811, Beginning Algebra = 110 or 111+112, Intermediate Algebra = 120 or 122+123, Transfer = 130, 150, 200-level*

Visual by Greg Stoup
### Color Gradient: Heat Mapping

**On-Campus Courses Taught by Day and Time**

<table>
<thead>
<tr>
<th>Time</th>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
<th>Heat Map Totals</th>
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</thead>
<tbody>
<tr>
<td>0700</td>
<td>138</td>
<td>94</td>
<td>148</td>
<td>94</td>
<td>75</td>
<td>75</td>
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<td>0730</td>
<td>165</td>
<td>114</td>
<td>195</td>
<td>94</td>
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<td>111</td>
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<td>0800</td>
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<td>868</td>
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<tr>
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<td>2,642</td>
<td>2,895</td>
<td>2,664</td>
<td>1,395</td>
<td>1,395</td>
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<tr>
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<td>1,466</td>
<td>1,343</td>
<td>1,202</td>
<td>1,202</td>
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<td>1,623</td>
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<td>1700</td>
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<td>2,200</td>
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<td>136</td>
<td>104</td>
<td>86</td>
<td>14</td>
<td>14</td>
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</tbody>
</table>

Sum of Color By broken down by Day vs. Time. Color shows sum of Color By. The marks are labeled by sum of Color By. The data is filtered on Term, BUILDING_DESC and ROOM. The Term filter keeps Fall 2015. The BUILDING_DESC filter keeps 53 of 53 members. The ROOM filter keeps 248 of 248 members.
You Can Even Take the Numbers Away

<table>
<thead>
<tr>
<th>Applied</th>
<th>BS Eng</th>
<th>BS Math</th>
<th>BS ESL</th>
<th>Persistence</th>
<th>Distance Ed</th>
<th>Face to Face</th>
<th>30-ctl prepared</th>
<th>30-ctl unprepared</th>
<th>Transfer Prepared</th>
<th>Degree/Cert</th>
<th>3-years to Transfer</th>
<th>6-years to Transfer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>Male</td>
<td>Female</td>
<td>Male</td>
<td>Male</td>
<td>Male</td>
<td>Male</td>
<td>Male</td>
<td>Male</td>
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<td>Male</td>
<td>Female</td>
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<tr>
<td>Female</td>
<td>Female</td>
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<td>Female</td>
<td>Female</td>
<td>Female</td>
</tr>
<tr>
<td>Latino/Hispanic</td>
<td>Latino/Hispanic</td>
<td>Latino/Hispanic</td>
<td>Latino/Hispanic</td>
<td>Latino/Hispanic</td>
<td>Latino/Hispanic</td>
<td>Latino/Hispanic</td>
<td>Latino/Hispanic</td>
<td>Latino/Hispanic</td>
<td>Latino/Hispanic</td>
<td>Latino/Hispanic</td>
<td>Latino/Hispanic</td>
<td>Latino/Hispanic</td>
</tr>
<tr>
<td>White</td>
<td>White</td>
<td>White</td>
<td>White</td>
<td>White</td>
<td>White</td>
<td>White</td>
<td>White</td>
<td>White</td>
<td>White</td>
<td>White</td>
<td>White</td>
<td>White</td>
</tr>
<tr>
<td>Unknown/Declined to State</td>
<td>Unknown/Declined to State</td>
<td>Unknown/Declined to State</td>
<td>Unknown/Declined to State</td>
<td>Unknown/Declined to State</td>
<td>Unknown/Declined to State</td>
<td>Unknown/Declined to State</td>
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<td>Unknown/Declined to State</td>
<td>Unknown/Declined to State</td>
<td>Unknown/Declined to State</td>
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<td>18-20</td>
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<td>18-20</td>
<td>18-20</td>
</tr>
<tr>
<td>35 and above</td>
<td>35 and above</td>
<td>35 and above</td>
<td>35 and above</td>
<td>35 and above</td>
<td>35 and above</td>
<td>35 and above</td>
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<td>35 and above</td>
<td>35 and above</td>
<td>35 and above</td>
</tr>
</tbody>
</table>

**Student Equity Data 2015-16**

**Legend:**
- Red
- Orange
- Yellow
- Green
Let’s Talk Charts: Some Dos and Don’ts

Don’t:
• Use 3-D (please!)
• Include lines/labels that draw the audience’s attention away from your main points (the story)

Do:
• Make your chart look like you used something other than MS Excel (even though you did)
• Use color to draw attention to your main points (highs, lows)
A Chart Gone Bad

Completion Rate by Ethnicity

- White: 70% Prepared, 42% Unprepared
- Pacific Islander: 53% Prepared, 34% Unprepared
- Hispanic: 63% Prepared
- Filipino: 35% Prepared, 32% Unprepared
- Asian: 62% Prepared

Prepared
Unprepared
An Improved Chart

*Preparedness* is one of the biggest predictors of student completion
Let’s Add Some Context

Equity implications: We know from statewide research that disproportionately low percentages of underrepresented students land in the “prepared” bucket.

But only \( \frac{1}{4} \) students falls into the “prepared” bucket.

And...

Equity implications: We know from statewide research that disproportionately low percentages of underrepresented students land in the “prepared” bucket.
And Speaking of Infographics...

They are wonderful tools, but there are a few things you should consider:

• The audience
• Reporting media (PPT, flyer, brochure, website)
• What’s your data story?
• Do the data lend themselves to an infographic?
Four orientations of creative infographics

- What is the explicit objective of this piece of work?
- What will that get you?
- And what will that get you?

Purpose
- Is this piece of work compelling?
- Does it build awareness?
- Does it call people to act?
- What is its tone?

Story

Audience
- Who is this piece of work aimed at?
- Are they prepared to hear it?
- What expectations might they have?

Research
- What is the validity of this piece of work based on?
- Who will see it as credible and why?
- How might its substantiation be challenged?

Greg Stoup, 2014
Two options at each corner guide the development of a visual.

- The flow and sequencing of elements in the visual
- Informs choice of color schemes for the visual
- How much information and layering permitted in the visual
- How much text & data to include and choice of language

Greg Stoup, 2014
Some Examples of Infographics

**COPPER MOUNTAIN COLLEGE**

Course Completion Rate Calculation

ACADEMIC YEAR 2013-14

<table>
<thead>
<tr>
<th>Total Grades</th>
<th>A, B, C, Or P</th>
<th>D, F, Or Np</th>
<th>W</th>
</tr>
</thead>
<tbody>
<tr>
<td>10,096</td>
<td>7,019</td>
<td>1,889</td>
<td>1,188</td>
</tr>
</tbody>
</table>

**COURSE COMPLETION RATE**

\[ \frac{7,019}{10,096} = 69.5\% \]

Visual by Jake Kevari
More Examples of Infographics

THE TRADITIONAL ENGLISH PATHWAY

Enrolled in English 43: 1,248 Students
Completed English 43: 70% Complete
Enrolled in English 49: 66%
Completed English 49: 81%
Enrolled in English 101/105: 71%
Completed English 101/105: 78%

Within 4 terms 21% Complete

Source: CCCC Basic Skills Cohort Tracker, Fall 2010 – Fall 2012 cohorts; students tracked for 3 primary terms after their initial course enrollment

260 Students
Copper Mountain College ScoreCard 2014

- Cohort: 100% (362)
- Persistence: 56.4% (204) increase by 3.1% (+11)
- 30 Units: 51.1% (185) increase by 1.7% (+6)
- Completion: 26.8% (97) decrease by 3.5% (-13)

Average Success Rate (Fall 2015) for all students in English 101/105 Combined: 71%

The number of students who would increase by transfer level 1/3.
A Viz That Effectively Tells a Story (Visual by Greg Stoup)
Visualizing Qualitative Data

**Strengths**
- High Quality Programs
- Commitment to Excellence
- Inspiring Students

**Weakness**
- Complex Structures
- Technology Infrastructure
- Hiring Freeze

**Opportunities**
- Foster Innovation
- Demands for Retraining
- Increasing Accountability Demands
- System Migration

**Threats**
- Decreased Funding
Data Visualization Tools

rCharts
Tableau Public
Canva
Venngage

Prezi
Wordle
Excel!
Resources & References

Stephanie Evergreen’s Data Visualization Checklist

Ann K. Emery’s Data Visualization Resources

Stephen Few’s Data Visualization Principles

NCSL Tips for Effective PowerPoints
Group Activity

• Thinking about what you learned today

• How has what you learned changed how you will present your group’s data?
How a TEDx Presentation Transformed How I Prep
Student Success Stories
A Few Words of Advice

✓ Learn about the campus culture

✓ Honor the past (history) of the topic, project, stakeholders

✓ Anticipate (when possible) hidden agendas

✓ Preview your presentation with your client and other stakeholder groups
Don’t fear the crappy first draft
Don’t fear the crappy first draft

Greg Stoup, 2014
Wrap Up

1. Consider your audience
2. Identify the message
3. Keep it simple
4. Avoid unnecessary details
5. Prepare a first draft and practice with a colleague
Framing the Data Story: What’s Your Sticky?