Designing a Campus Standard for Your Tableau Dashboards

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Today’s agenda

- Why create a template?
- Designing a template
- Building and using the template
- User adoption
Why we have a campus template
Why develop a template?

- Branding
- Consistency
- Accessibility
- Ease of use
  - Report users can easily navigate between reports and understand basic layout and functionality that is common across reports.
  - authors don’t need to reinvent the wheel
Introducing... the University of Maryland template!

Header with report title

REPORT TITLE (ALL CAPS)

SELECT ORGANIZATION:
SELECT TERMS:
SELECT:

Filters:
- College/division
- Terms
- Additional filters

Table/Visual Title - Include parameters to identify data on display

Icons indicate data source(s)

Visualizations and tables go here

Footer with contact information

<Office/Dept Name> - For assistance call <phone number> or email <email>

UMD logo
Designing a template
Our Design Process - An Overview

1. **Research**
   - Reviewed other institutions dashboards
   - Reviewed internal user stats

2. **Identify Requirements**
   - Identified core components of our reports
   - Based on user stats, identified requirements for report dimensions
   - Identify questions for Stakeholders

3. **Internal Decisions**
   - Based on external review, what options did we have for our core components
   - Discuss and finalize which options to present to Stakeholders

4. **Present Options to Stakeholders**
   - Confirm user assumptions
   - Get feedback on options
   - Identify any missing elements

5. **Review Feedback**
   - Make adjustments based on Stakeholder feedback
   - Test report scenarios to ensure functionality

6. **Finalize Template**
   - Present final drafts to Stakeholders
   - Finalize the template and create documentation
Researching Tableau

- IRPA Staff were tasked with reviewing Tableau dashboards developed by other Higher Ed institutions. Identify likes and dislikes.
- IRPA Staff Retreat to discuss – identify likes and dislikes.
Researching Tableau

FROM THE RETREAT

SIMPLE       QUICK
VISUALS & VARIETY REPORT NOTES
USER EXPERIENCE

POOR COLOR CHOICES LAG
NO USER GUIDANCE SMALL/UNREADABLE TEXT
CAN’T DISPLAY BIG DATA SETS
Researching Tableau

AN IRPA REPORT SHOULD...

- Have simple/clean layout
- Intuitive functionality
- Attractive colors
- Ability to display large data sets
- Load quickly
Researching Our Users

- IRPA were replacing a suite of existing reports that were hosted on our departmental website.
- Because we had Google Analytics tracers on our site, we had some data on our existing users.
- Looked at:
  - Browser
  - Device Type (Desktop, Laptop, Tablet, Mobile)
  - Screen Resolution
Researching Our Users

- Chrome: 56%
- Firefox: 20%
- Safari: 14%
- Other: 8%
Researching Our Users
Researching Our Users
Researching Our Users
Identify Report Requirements: Tech Specs

- Design for Tablet - captures 94% of audience
- Report Width: 720 – 1024 (range)
- Report Height: 700
- Testing: Chrome, Firefox, Safari, IE
Identify Report Requirements: Report Components

● Because we were replacing a set of existing reports, we wanted to make the transition easy for our users.

● No loss in functionality
  ○ Longitudinal data going back to 1992.
  ○ Ability to view/query the data at different organizational levels - (university, division, college, department, major)

● Improve pain points
  ○ Leverage visualizations
  ○ Better documentation and definitions for reports and report elements.
Identify Report Requirements: Report Components

### CURRENT PROFILES REPORT

**Report Title**

**Unit Select**

**Term Select**

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At the university, the number of registered majors for each term is depicted. The data is divided into distinct categories:

- **Data**
  - **At the University**
  - **Department Undergraduate**
    - **Full Time**
    - **Part Time**
    - **Total**
  - **Graduate**
    - **Full Time**
    - **Part Time**
    - **Total**

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**Data Definitions**

- The data is presented in a tabular format, showing the number of registered majors for each term.
- The term includes both undergraduate and graduate degrees.
- The data is used for institutional research and planning.

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University of Maryland - Institutional Research, Planning & Assessment
Identify Report Requirements: Options

LAYOUT OPTIONS - TOP PARAMETERS

UNIT SELECT
TERM SELECT
ADDITIONAL PARAMETERS
DATA TABLE
DATA VISUAL
DATA DEFINITIONS
Identify Report Requirements: Options

**LAYOUT OPTIONS - SIDE PARAMETERS**

- **REPORT TITLE**
  - **UNIT SELECT**
  - **TERM SELECT**
  - **ADDITIONAL PARAMETERS**
- **DATA TABLE**
- **DATA VISUAL**
- **DATA DEFINITIONS**
Identify Report Requirements: Options

LAYOUT OPTIONS - TABS

- Visual Tab
- Table Tab
- Def Tab

- Unit Select
- Term Select
- Additional Parameters

(Data Options, Data Tables)
Identify Report Requirements: Options
Identify Report Requirements: Options

- **Term Selection:**
  - Preset Term limit - 10 Year display with no user interaction
  - Single Term Select
  - Multiple Term Select - dropdown checklist
  - Term Range

- **IRPA Staff Conclusion:**
  - Term Range with Term Type Filter
  - Single Term Select in select reports.
Identify Report Requirements: Options

- **Unit Selection:**
  - Filter by College
    - No deeper levels
    - Parameters for department and major levels
  - Filter by College, Department, and Major

- **IRPA Staff Conclusion:**
  - Give users to filter by College, Dept, and Major
Identify Report Requirements: Options

- Other Filters Selection:
  - Lots of filters for maximum cross-sections
  - Limited filters
  - Parameters to give users breakout options without filtering

- IRPA Staff Conclusion:
  - Aim for 10 or less filters
  - Mix filters and parameters as appropriate for a given report
Internal Decisions

- IRPA Staff Meeting to discuss options, make internal decisions and identify report to prototype
- Decide key decisions to present to Stakeholders
  - Visualizations vs tables
  - Don’t present any options you’re not 100% comfortable with!
- Identify report(s) to prototype
  - Representative of decisions that will need to be made across the reports
Internal Decisions

- IRPA Staff Meeting to discuss options, make internal decisions and identify report to prototype
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Prototyping

- Give yourself time to develop a prototype of a report.
- Experiment with layout options, user filters, multiple visualizations.

- Learning Tableau -
  - Revisit reports you liked from your research phase.
  - Review tutorial videos on different Tableau-specific techniques
    - Ex. Using parameters to pass different fields into a table
  - Experiment with interactivity
Prototyping

- New questions will come up as you develop your prototypes.
- Take notes and plan to present options to your Stakeholders.
Presenting to Stakeholders

- Present prototypes
- Someone to take notes
  - Listen for keywords that will point you in a direction for your visualizations
    - “Compare”
    - “Across time”
- There will be critiques you didn’t plan for
  - Specifics on branding
  - Color choice
  - Data Info
  - Contact information
Review Stakeholder Feedback

- You won’t make everyone happy
- Identify changes you want to make
- Make updates to your prototypes to integrate the feedback
- Internal testing
  - Test common report scenarios to be sure your report displays them well.
  - Identify odd cases and how your report handles them - null values, etc.
Share Revised Prototype with Stakeholders

- Share a copy of the revised prototype and ask that users interact with it on their own time.
- Address feedback that was integrated, feedback that is listed as a future enhancement, feedback that wasn’t a good choice (not all feedback acted on).
Takeaways

- Research Tableau reporting by others
- Think about what you want to do with your reporting, and that will inform your template
  - Who is your target audience?
  - How will users access your reports?
  - What are the key features you envision for your reports?
  - What level-of-detail will users need in their reports?
- Incorporate stakeholders from your target audience in your development process & plan to iterate
Building a template
# How large should my dashboard be?

**Fixed (default):** Size stays the same

- Can specify exact location & position of objects
- May load faster than dashboards with variable sizes

**Range:** Scales between minimum and maximum sizes that you specify

- Useful when designing for 2 display sizes with similar shapes
- Works well for mobile dashboards with vertical layouts

**Automatic:** Automatically resizes to fit window

- Easy! Tableau takes care of the resizing.

<table>
<thead>
<tr>
<th>Benefits</th>
<th>Limitations</th>
</tr>
</thead>
<tbody>
<tr>
<td>● Can specify exact location &amp; position of objects</td>
<td>● User frustration when there are scrollbars in the dashboard, even though there is space on screen</td>
</tr>
<tr>
<td>● May load faster than dashboards with variable sizes</td>
<td>● May not display properly when dashboard is larger or smaller than window</td>
</tr>
<tr>
<td>● Useful when designing for 2 display sizes with similar shapes</td>
<td>● Requires testing more scenarios to ensure functionality</td>
</tr>
<tr>
<td>● Works well for mobile dashboards with vertical layouts</td>
<td>● Least consistent user experience</td>
</tr>
</tbody>
</table>
Researching Our Users
How large should my dashboard be?

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**Automatic:** Automatically resizes to fit window
- Easy! Tableau takes care of the resizing.
- Least consistent user experience
But first… some Tableau terminology!
Tableau terminology: Dashboards

Dashboard
A collection of multiple objects in a single display.

You can use:

- Sheets
- Filters/Parameters
- Static text boxes
- Images
- Web Page embeds
- Containers

From Tableau: Size and Lay Out Your Dashboard
Tableau terminology: Containers

Container
A way to group dashboard items together so you can quickly position them. There are 2 types.

1. **Horizontal (side-by-side)**
   
   Resizes **widths** of views and objects it contains.

2. **Vertical (stacked vertically)**
   
   Resizes **heights** of views and objects it contains.

From [Tableau: Size and Lay Out Your Dashboard](#)
Tableau terminology: Tiled and floating objects

**Tiled**

Items are in a single layer grid & can’t overlap

**Floating**

Items can be layered on top of other objects

From [Tableau: Size and Lay Out Your Dashboard](#)
Tableau terminology: Padding

Padding

Lets you space items on a dashboard more precisely.

A - Outer padding
B - Border
C - Inner padding

From Tableau: Size and Lay Out Your Dashboard
Using the template
Takeaways

- Design for your users!
- This is all about tradeoffs.
  - E.g., a fixed size is the simplest to work with, but may lead to user frustration.
- Use Tableau defaults when possible and document when you don’t.
User adoption
Template Access

- The campus template is available for download in a project on Tableau Server.
- Members of the UMD Tableau Community of Practice have access to this project.
Directions for Users

- We realize that using the layout containers and appropriate formatting requires some guidance.
- We provide:
  - Tab within the template that has basic guidelines for editing the elements within the template.
Directions for Users

- We realize that using the layout containers and appropriate formatting requires some guidance.

- We provide:
  - Published Style Guide that provides detailed settings and formatting for campus reports.
Directions for Users

- We realize that using the layout containers and appropriate formatting requires some guidance.
- We provide:
  - “Using the Campus Template” documents why we use the template, common formatting guidelines, and a step-by-step tutorial on how to place visualizations and filters in the template.
QA Process

- We have developed a QA Process using Google Forms to allow for an independent review of a completed report by a second set of eyes.

- Our original QA process was more limited in scope and focused on IRPA’s reports. As time went on we needed to adapt the process to be suitable for a broader set of reports.

- In addition to checks on data accuracy and performance, a large portion of the QA form is dedicated to appropriate use of the template and formatting.
QA Process

Report Title *

NUMBER OF REGISTERED MAJORS

Questions Responses Settings

Accessibility

It is important that reports are accessible to a wider range of people with disabilities, including blindness and low vision, deafness and hearing loss, learning disabilities, cognitive limitations, limited movement, speech disabilities, photosensitivity and combinations of these.

All non-text content has a textual equivalent that serves the same purpose *

UMD reports will have the "View Data" option turned on for all Viewers of a report. This allows a user to access the underlying data for any visual in a cross-tab format that can be read by a screen reader. It can also be beneficial to utilize captions to provide a textual description of a visualization.

☐ Yes

☐ No

Color is not the only means of conveying information or distinguishing a visible element *

Use the color-blind palette when distinguishing color by categories (discrete fields/dimensions). When assigning colors, try to provide enough contrast and assign colors that differ from each other on the light-dark spectrum. Additionally, when you use color in the view, there should also be other types of encoding for marks, such as labels, size, shape, and position. Include color legends when appropriate. If the color-blind palette is not applied, you can verify accessibility using a color-blindness simulator: https://www.color-blindness.com/color-blindness-simulator/

☐ Yes

☐ No

All text and images of text must have sufficient contrast between the text foreground and background.

Be sure that all text (including titles, filters, notes, tooltips, mark labels, etc.) are of a sufficient size and contrast. Avoid tone-on-tone text-background combinations (i.e. blue mark labels within a blue bar graph, grey text with a grey background, etc.) Color Contrast Accessibility Validator: https://color.e11y.com/?v=3

☐ Yes

☐ No
Report Support

Email reflector with internal team to answer questions

- How to access the template (i.e. joining the Community of Practice)?
- Support users when working with the template
  - Provide guidance around new visualization types
  - Provide suggestions when space is limited
- “Can I make this change to the template?”
  - “maybe?”
- QA Testing - assist with finding a QA Tester
Formal/Informal Reporting

Not always necessary to have reports in the template. Informal reports:

- Canned reports shared internally or narrowly
  - Seek to answer a specific set of questions using defined specifications
  - Produced with regular frequency and/or on demand
  - Shared only with viewers inside your department
  - Or shared with less than 10 viewers inside and outside your department

- Ad hoc analyses
Formal/Informal Reporting

Reports that require **formal report** creation and testing processes:

- Canned reports shared with large or broad audiences
  - Shared with 10 or more viewers inside and outside your department
  - Or shared representatively across campus (i.e. at least one report viewer from each college)
Questions?