Making Peace with Data Visualization Overload

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Outline

Why data dashboards?

Software Decision Process

Development and Demonstration
  
  Power BI at Cabrillo College

  Tableau at Delta College

Comparisons and Additional Viz Options

Q&A
Why Data Dashboards?

Enable College Community to make data-informed decisions

- Reduces ad hoc requests for IR office
- Helps develop a culture of inquiry

Dashboard use at Cabrillo College

- Enrollment Tracking
- Program Planning
- Improvement of Instruction

Dashboard use at Delta College

- Enrollment and Student Achievement
- Program Review
- Student Equity
Software Decision Process

Cost

Ability to connect to existing data systems

Familiarity with the product (trial/public version)
Development - Power BI

Initial Data Import

Configuration

Publishing

Training Users
Development - Power BI

Initial Data Import

Excel, CSV, SQL Data Warehouse

Gateway

SQL Server -> Powerpivot

Power Pivot -> Power BI
Development - Power BI

Configuration - use multiple datasets

- Allows for the use of multiple tables/datasets in one dashboard
- Join tables on matching data elements
- When joined, slicers affect visualizations using both tables
Development - Power BI

Configuration - visualizations

- Drag and drop data elements to fill visualizations
- Choose formula for numeric elements (count, percent, sum, etc)
- Edit colors, data labels, title, etc

CompletionRate = \( \frac{\text{SUM(Completion)}}{\text{SUM(Enrollment)}} \)

DAX
Development - Power BI Publishing

Public site

Hosted by Power BI

Can be embedded in a website

SQL Server Reporting Services

Use powerpivot to create a gateway

Can require authentication for users
Development - Power BI

Training Users

Technical Training

Flex activities

One on one dashboard training with deans and chairs

Additional Training

Equity training for dashboards with sensitive information
Demonstration- Power BI

Comprehensive Course Information Dashboard

Purpose: program and course planning

Select a course and the dashboard reveals

Courses taken prior to, concurrently with, and after selected course

Basic demographic information

* not a public dashboard

Comprehensive Course Information Dashboard
Development- Tableau

Initial Data Import

Configuration

Publishing

Training Users
Development - Tableau

Initial Data Import

Many options for data file or database connection

Delta: Excel File
Development - Tableau

Configuration

Worksheets

Dashboards

Customization of visualizations, colors, data layers

Calculated fields

Filters

\[
\text{Retention Rate} = \frac{\sum([\text{Retention}])}{\text{Count}([\text{Retention}])}
\]
Development - Tableau

Publishing

- Upload to Tableau Public
- Created Web Page with dashboard links
- Embed Codes
- Tableau Reader

https://www.deltacollege.edu/div/planning/dashboards/index.html
Development - Tableau

Training

Workshop Series

Program Review

Equity Innovation Funding

Flex Days

Professional Development Center

Delta's Data Dashboards

*A new series of interactive workshops!*

Learn how to navigate the new dashboards that were designed to help provide access to Delta's student enrollment, demographic, and achievement data through dynamic visualizations.
Demonstration- Tableau

Student Achievement Dashboard

Course Success Rates by Program

Equity Index using Percentage Point Gap Methodology

Used for Program Review and Program Planning

Delta College Data Dashboards
## Comparisons - Power BI and Tableau

<table>
<thead>
<tr>
<th>Advantages of Power BI</th>
<th>Advantages of Tableau</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost effective</td>
<td>Easy to use (point/click/drag)</td>
</tr>
<tr>
<td>Free with SQL Server for internal</td>
<td>Ability to allow data download</td>
</tr>
<tr>
<td>$25/year for external</td>
<td>Many visualization options</td>
</tr>
<tr>
<td>Custom visualizations available</td>
<td>Customizable content</td>
</tr>
<tr>
<td>Frequent updates by Microsoft</td>
<td>Large user community</td>
</tr>
<tr>
<td>Multiple datasets can be joined</td>
<td>Ability to self-teach</td>
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<tr>
<td>Data can be kept private with a gateway</td>
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</tbody>
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Comparisons- Power BI and Tableau

Challenges with Power BI

- Publication to public site to embed dashboards
- Cannot directly connect to SQL Data Warehouse (yet)
- Limited matrix/table abilities

Challenges with Tableau

- Publication to public site for embed codes (desktop version)
- Need Tableau Reader for colleagues
Other Visualization Options

**R Shiny**

Program interactive visualizations in R that can be embedded into HTML pages

Requires more programming than other options

**Looker**

GUI interface

Steep learning curve

**R Charts**

Similar to R Shiny
Questions?

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