



Grand Challenges in Assessment:

Leveraging Data Visualization to Support Data-Informed Decision-Making

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Learning Outcomes



1

Describe how data visualization and interactive data dashboards can help drive campus improvement, promote equity, and facilitate student growth

2

Recognize major challenges and opportunities related to advancing the use of data visualizations and data dashboards to support campus decision-making.

3

Identify your own knowledge and skill gaps in creating, sharing, and using data visualizations to support data-informed decision-making.

4

Create an action plan that will enable decision-makers at your own institutions to see and understand assessment data to support data-informed decision-making.

Session Overview

Part 1

Background

Part 2

Using Data Vis to Drive Improvement, Promote Equity, and Facilitate Student Growth

Part 3

Challenges & Opportunities

Part 4

Identifying Your Knowledge & Skill Gaps

Part 5

Action Planning

Poll Everywhere

Responses are anonymous

2 ways to participate

Join by Web

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your camera app**



On the continuum of data visualization, where do you currently fall?

Level 0: No Data Visualization Experience

Level 1: Static Charts & Tables (ex: Excel)

Level 2: Interactive Dashboards for Internal or External Consumption (ex: Tableau, PowerBI)



What part of your organization do you work in?

Institutional Research

Office of Assessment & Accreditation

Campus Administration

College or School

Student Affairs

Business Affairs

Other



Is there a question that you are bringing to the session that you hope to have answered? Let us know and we'll do our best to address it during the session.

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1

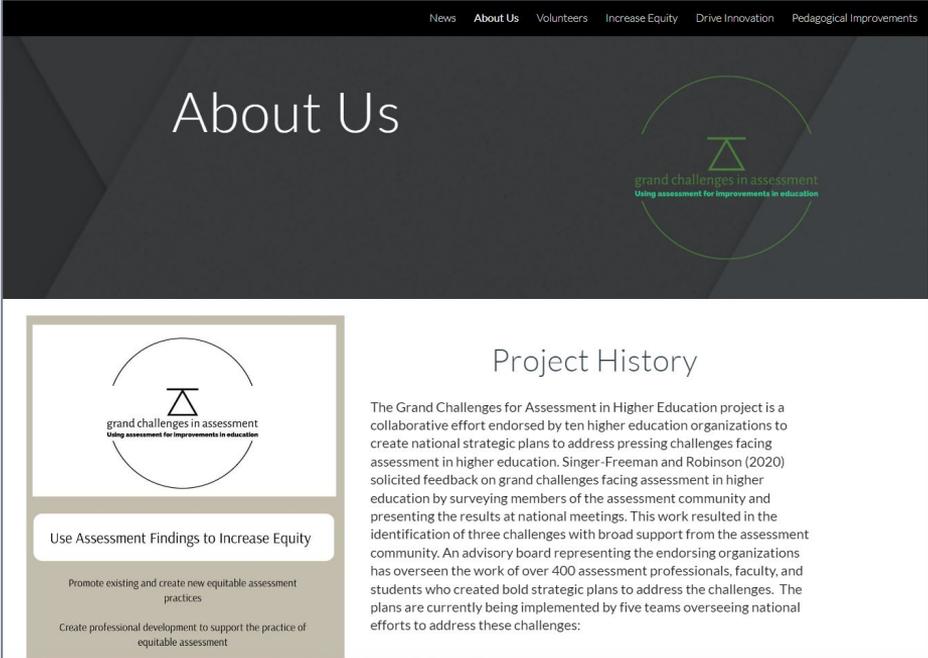
Background and Context



Grand Challenges in Assessment

3 Implementation Teams

1. Using Assessment Findings to Increase Equity
2. Making Assessment Findings Visible and Actionable to Drive Innovation
3. Using Assessment Findings to Drive Rapid and Equitable Improvements in Pedagogy



The screenshot displays the website's navigation menu at the top: News, About Us, Volunteers, Increase Equity, Drive Innovation, and Pedagogical Improvements. The main heading is 'About Us'. To the right is a circular logo with a triangle inside, containing the text 'grand challenges in assessment' and 'Using assessment for improvements in education'. Below this is the 'Project History' section, which includes a smaller version of the logo and a text block describing the project's collaborative nature and goals. A sidebar on the left features a box titled 'Use Assessment Findings to Increase Equity' with sub-points: 'Promote existing and create new equitable assessment practices' and 'Create professional development to support the practice of equitable assessment'.

sites.google.com/wfu.edu/grandchallengesinassessment

Data Visualization Subcommittee Charge

- 1) Create and disseminate data visualization and data storytelling resources *and*
- 2) Increase use of data visualizations in higher education

Proper data visualization can communicate findings quickly so that stakeholders can focus on implementation strategies rather than understanding the data.

Data Vis Working Group Priorities

Where we started

- ▶ Formed as a group
- ▶ Created a logic model
 - ▷ Activities
 - ▷ Impacts
 - ▷ Resources needed
- ▶ Outlined performance outcomes measures

Where we are now

- ▶ Conducting a needs assessment (ongoing)
- ▶ Building awareness about role/value of data visualization in decision-making
- ▶ Creating a data vis toolkit

Where we're headed

- ▶ Completing & disseminating toolkit
- ▶ Writing articles
- ▶ Creating and offering educational opportunities
 - ▷ Webinars
 - ▷ Hands-on workshops
 - ▷ Other continuing education

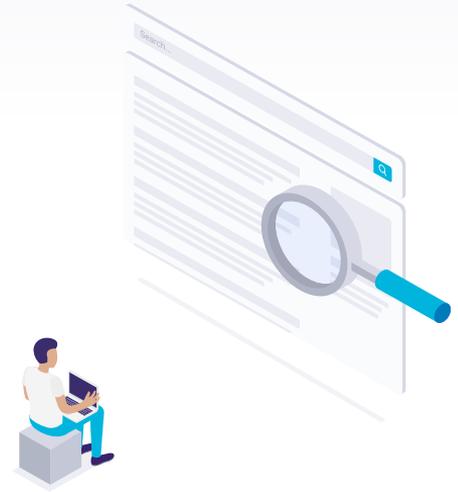
2

Using Data Visualization to Drive Improvement, Promote Equity, and Facilitate Student Growth



Data vis is ...

... the presentation of data in a pictorial or graphical format. It enables decision makers to see analytics presented visually, so they can **grasp difficult concepts or identify new patterns.** ([SAS Website](#))

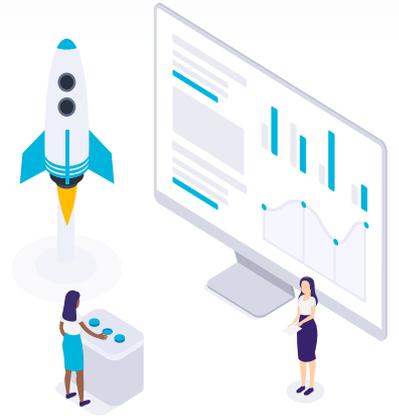


Why “do” data vis?

Alberto Cairo explains,

“The first and main goal of any graphic and visualization is to be a tool for your eyes and brain to **perceive what lies beyond their natural reach**” (Cairo, *Functional Art*, pages 9 -10).

“...if you don’t present your data to readers so they can see it, read it, explore it, and analyze it, why would they **trust** you?” (Cairo, *Functional Art*, page 13).



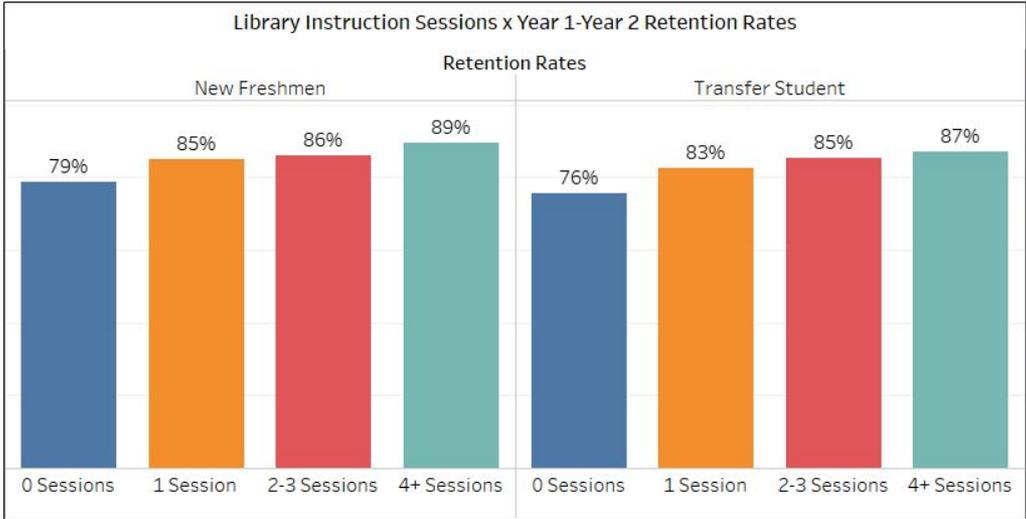


Example:

UNC Charlotte's library is leading a 10+ year campus-wide longitudinal study to gather, align, and analyze undergraduate co-curricular engagement data with measures of student success.

- ▶ Students who matriculated from 2012-2013 to 2021-2022 are included in the dataset; data are added after each academic year.
- ▶ Through insights gained through data visualizations, the library was able to make a case for hiring a new librarian to support transfer student success.

Library Instruction Year 1 to Year 2 Retention



Matriculation Year
(All) ▾

First Generation
(All) ▾

Race (URM)
(All) ▾

Pell Eligibility
(All) ▾

College
(All) ▾

Major
(All) ▾

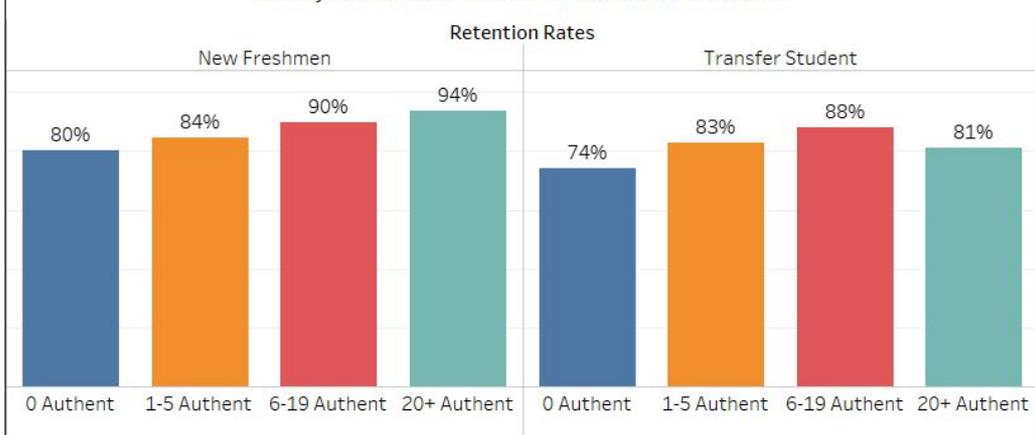
The first graph confirmed that students who engage in library instruction in Year 1 are more likely to be retained for Year 2.

| Undergraduate Students Participating in Library Instruction in 1st Year | | | | | |
|---|---------------|-------------|------------------|-------------|--|
| | New Freshmen | | Transfer Student | | |
| | Total | % of Total | Total | % of Total | |
| 0 Sessions | 13,309 | 42% | 20,544 | 81% | |
| 1 Session | 11,816 | 37% | 3,678 | 14% | |
| 2-3 Sessions | 5,778 | 18% | 1,096 | 4% | |
| 4+ Sessions | 685 | 2% | 115 | 0% | |
| Grand Total | 31,588 | 100% | 25,433 | 100% | |

However ... the visualizations also revealed that 81% of transfer students did not participate in library instruction.

Library Authentications Year 1 to Year 2 Retention

Library Authentications x Year 1-Year 2 Retention Rates



Matriculation Year

(All) ▾

First Generation

(All) ▾

Race (URM)

(All) ▾

Pell Eligibility

(All) ▾

College

(All) ▾

Major

(All) ▾

Undergraduate Students who Authenticated to Library Resources in 1st Year

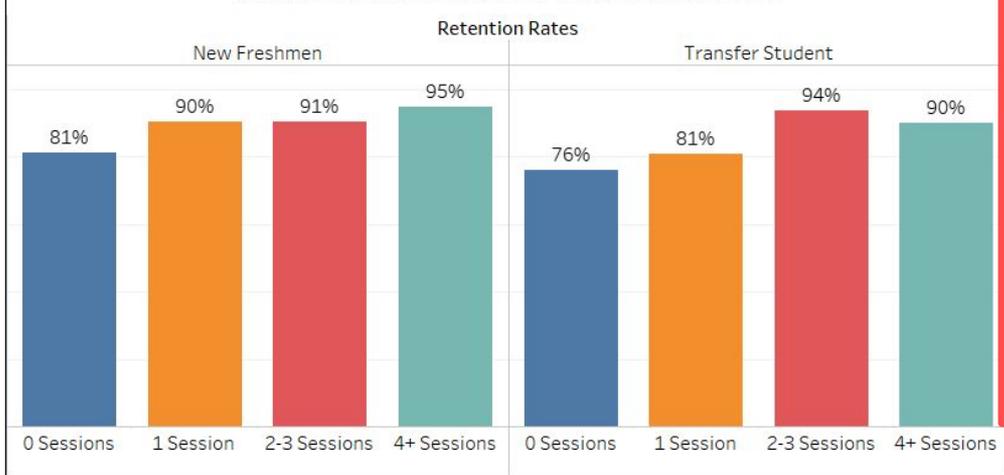
| | New Freshmen | | Transfer Student | |
|--------------|--------------|------------|------------------|------------|
| | Total | % of Total | Total | % of Total |
| 0 Authent | 20,259 | 64% | 18,234 | 72% |
| 1-5 Authent | 6,391 | 20% | 4,167 | 16% |
| 6-19 Authent | 4,335 | 14% | 2,424 | 10% |
| 20+ Authent | 603 | 2% | 608 | 2% |
| Grand Total | 31,588 | 100% | 25,433 | 100% |

Students who use the library's authenticated (licensed) resources are also more likely to be retained to Year 1. Learning to use these resources often occurs in library instruction.

Similar to library instruction ... very few students are accessing authenticated resources in their 1st year.

Library Instruction Year 1 to Year 2 Retention

Library Instruction Sessions x Year 1-Year 2 Retention Rates



Matriculation Year
(All) ▾

First Generation
(All) ▾

Race (URM)
(All) ▾

Pell Eligibility
(All) ▾

College
Education ▾

Major
(All) ▾

Using filters enables exploration of nuances based on student demographics in order to gain additional insights.

Undergraduate Students Participating in Library Instruction in 1st Year

| | New Freshmen | | Transfer Student | |
|--------------|--------------|------------|------------------|------------|
| | Total | % of Total | Total | % of Total |
| 0 Sessions | 161 | 21% | 800 | 72% |
| 1 Session | 250 | 32% | 242 | 22% |
| 2-3 Sessions | 306 | 39% | 65 | 6% |
| 4+ Sessions | 59 | 8% | 10 | 1% |
| Grand Total | 776 | 100% | 1,117 | 100% |

Explore on your own!

<https://tinyurl.com/datavisexample>

3

Challenges & Opportunities



Data Visualization Inventory of Assessment Users Survey

(our needs assessment)

- Address professional development needs of higher education assessment professionals
- Consider ways to address current barriers to data visualization

Survey Link: <https://tinyurl.com/surveydatavis>



Last Data Refresh: April 24, 2023

Total Survey Responses: 371

Dashboard Navigation Buttons

About the Respondents

Primary Stakeholders

Data Visualization Tools Available

Data Visualization Tools Regularly Used

Data Visualization Challenges

Professional Development Needs

Professional Development Needs & Carnegie Class

Professional Development Needs & Part of Organization

Professional Development Needs (Comments)

Professional Development Needs Format Preferences

Tips, Tricks, & Expertise

 + a b l e a u



<https://tinyurl.com/datavisdashboard>

Which of the following is the most pressing challenge you are current facing relating to data visualization in your organization?

Lack of Staffing/Time to Meet Demand

Educating Data Visualization Customers

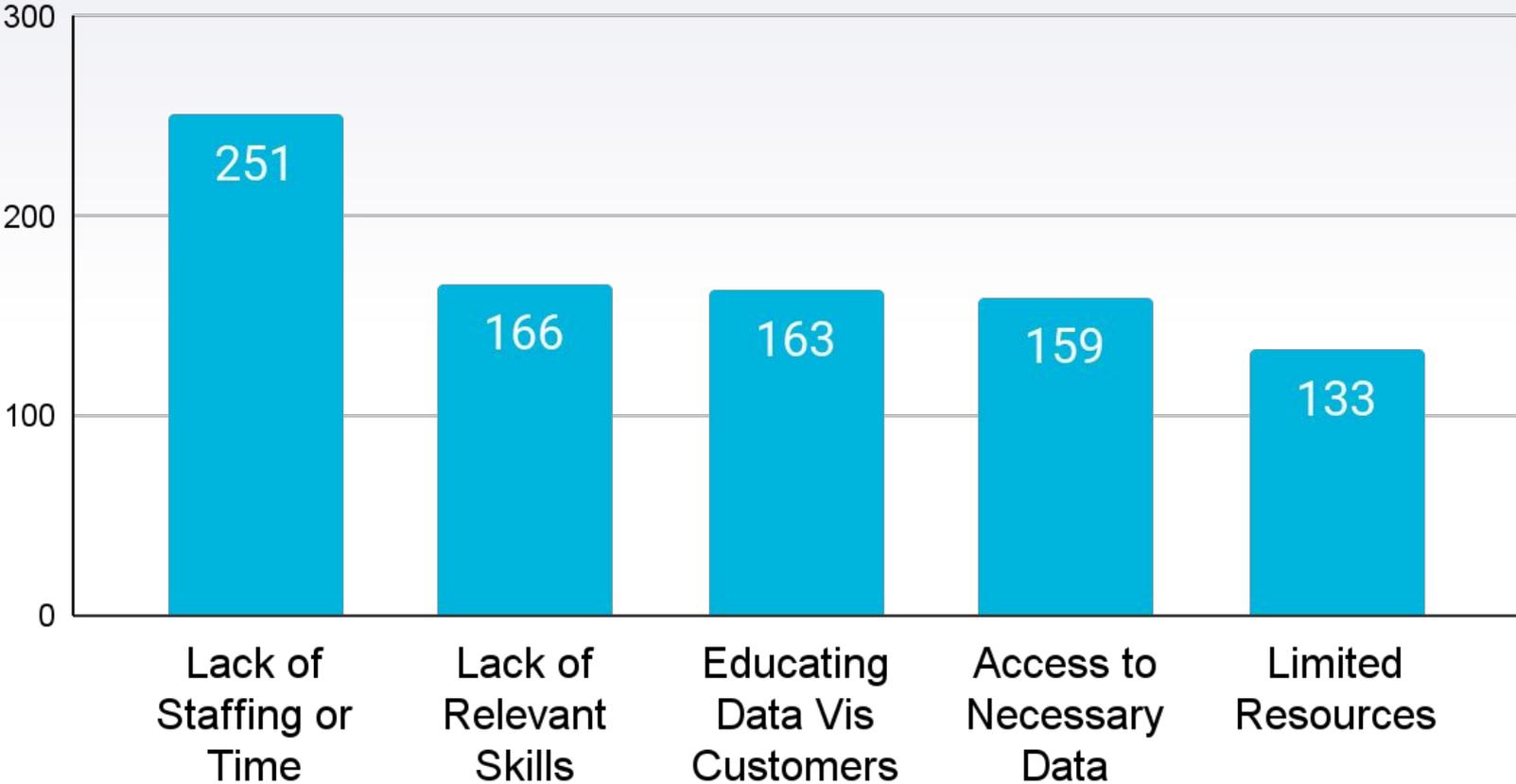
Access to All Data Sources Necessary

Lack of Relevant Skills

Limited Resources



Most Pressing Data Visualization Challenges



Which of the following professional development topics would be most useful to you?

How to create interactive visualization using specific tools (ex: Tableau, PowerBI)

Creating interactive dashboards

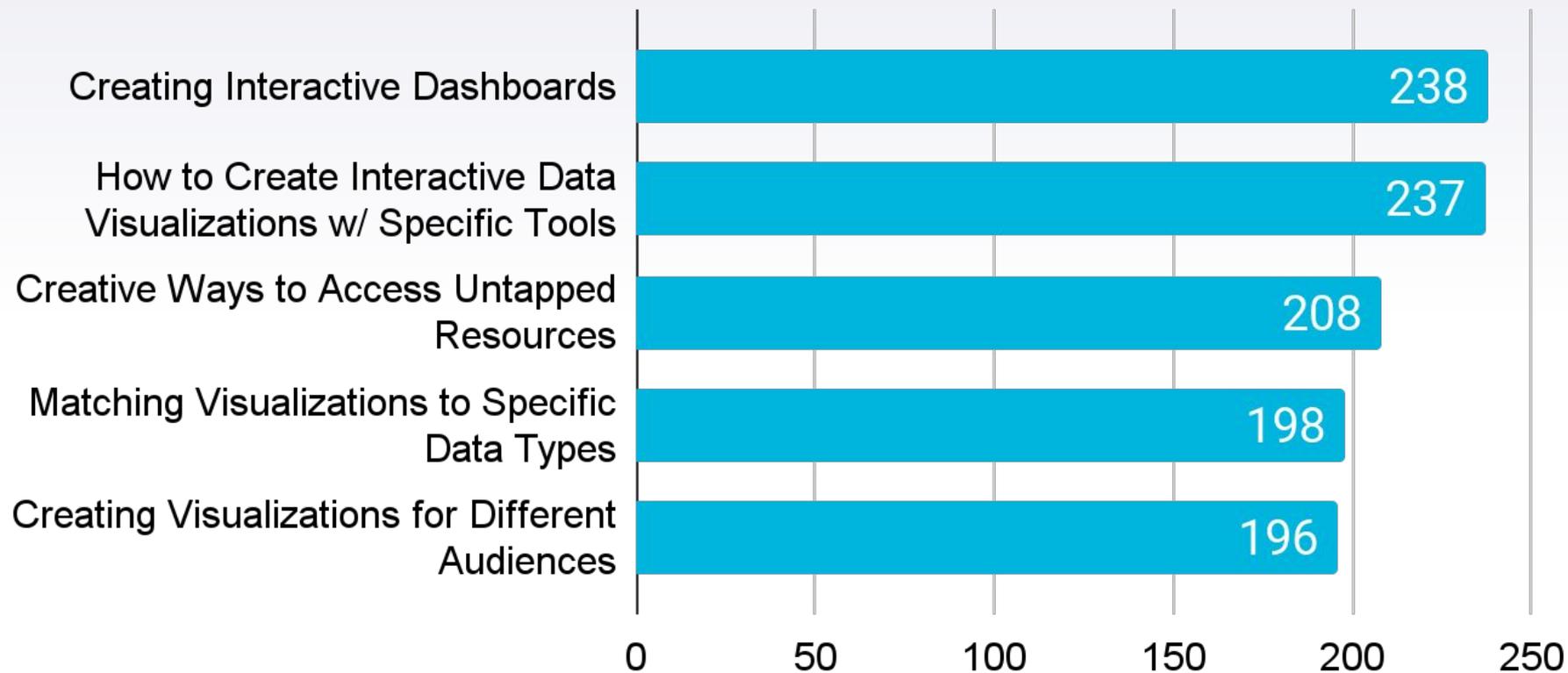
Matching visualizations to specific types of data

Creative ways of accessing untapped resources

How to create visualizations for different audiences and presentation needs



Professional Development Topics



How the Grand Challenges Data Visualization Subcommittee Plans to Use the Results

- Develop opportunities to address what we learned through the survey and today's polls ... today is the beginning!
 - Webinars, Articles, Workshops, Toolkit



4

Identifying Your Own Knowledge and Skill Gaps in Data Visualization



What can you do to move your own skills forward?

Some ideas ...

- ▶ Find some tutorials
- ▶ Take a workshop
- ▶ Attend a webinar
- ▶ Ask a friend
- ▶ Explore a data visualization tool



Join our data visualization subcommittee!!!

What ideas or next steps do you have for how to move your own skills forward?

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5

Action Planning for Advancing the Use of Data Visualization at Your Institution



What can you do to help advance the use of data visualization at your own institution?

Some ideas ...

- ▶ Ask your supervisor to invest in a tool and training.
- ▶ Identify others at your institution doing data vis.
- ▶ Form or join a campus working group.
- ▶ Invite yourself to the table.
- ▶ Share success stories (your own or others') about ways data vis has helped drive innovation.



What's one thing you can commit to now that might help to advance the use of data visualization at your own institution?

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Join by QR code

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Start the presentation to see live content. For screen share software, share the entire screen. Get help at poll-ev.com/app

Session Recap



Part 1

Background



Part 2

Using Data Vis to Drive Improvement, Promote Equity, and Facilitate Student Growth



Part 3

Challenges & Opportunities



Part 4

Identifying Your Knowledge & Skill Gaps



Part 5

Action Planning

References & Suggested Resources

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Q & A



Scan for Slides



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