Data Storytelling 101 for Libraries

Dr. Kate McDowell
School of Information Sciences
University of Illinois at Urbana Champaign

DATA STORYTELLING FOR LIBRARIANS

- **Building** a data storytelling toolkit
- **Supporting** public and community college libraries
- **Using** data libraries are already collecting
- **Creating** data visualizations and strong story structures
- **Advocating** for libraries with data storytelling

https://uiucdstl.wixsite.com/uiucdstl
THE STORYTELLING TRIANGLE
TELLER × TALE × AUDIENCE
Agenda for today’s talk

• What kinds of **data** do you have as evidence?
• What do you know about the **audiences** you need to reach?
• What’s the best **narrative structure** for your story?
Augusta Baker, first to hold the position of Storytelling Specialist at the New York Public Library, emphasized the story rather than the storyteller,

“who is, for the time being, simply a vehicle through which the beauty and wisdom and humor of the story comes to the listeners.” (Baker & Greene, 1977)

Caroline Hewins, Reading of the Young reports (1882-1898)
Betsy Hearne, ethics of folktale retelling in children’s books
Courses in ethical and accurate information communication, situated in a world of burgeoning data and new storytelling challenges. We take on those challenges directly, acknowledging the flexibility of expression available in data and story while being honest.

Co-created by Dr. Kate McDowell and Dr. Matt Turk. Co-instructors include Dr. Jill Naiman, Dr. Sharon Comstock, and doctoral students Courtney Richardson, Andy Zalot, and Morgan Lundy.
Comfort levels: data, story, both, neither?
Data Storytelling means any presentation of data using narrative strategies in story form.
What kinds of data do you have as evidence of library value?
Women introduced the systematic use of empirical evidence to librarianship.

- They were 20% of the profession.
- They created a series of qualitative survey-based reports, the *Reading of the Young* reports, which were presented at ALA conferences.
- This research model was adopted by others for public library research.

This research model changed the field, introducing a collaborative model of discourse.

Data Storytelling as Humanizing Data Literacy
Annual Costs of Being Online

- **Service + Owning Equipment (Year 1)**
  - Computing Device: 400
  - Startup Costs: 200
  - Monthly Service: 200
  - Equipment Rental: 200

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  - Computing Device: 400
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- **Service + Owning Equipment (Year 2+)**
  - Computing Device: 400
  - Startup Costs: 200
  - Monthly Service: 200

- **Service + Rental (Year 2+)**
  - Computing Device: 400
  - Startup Costs: 200
  - Monthly Service: 200
  - Equipment Rental: 200
How does this disparity impact library patrons?

<table>
<thead>
<tr>
<th></th>
<th>Waukegan Public Library</th>
<th>Lake Forest Library</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service Area Population</td>
<td>89,078</td>
<td>19,375</td>
</tr>
<tr>
<td>Estimated Median Household Income</td>
<td>$48,752</td>
<td>$167,404</td>
</tr>
<tr>
<td>Estimated % in Poverty</td>
<td>17.5%</td>
<td>2.6%</td>
</tr>
<tr>
<td>Total Library Revenue Per Capita</td>
<td>$50.48</td>
<td>$221.66</td>
</tr>
</tbody>
</table>

- **Print Materials Per 100 People**: 166 → 629 ➞ 3x more printed materials
- **Ebooks Per 100 People**: 116 → 369 ➞ 3x more ebooks
- **Programs Per 100 People**: 1.4 → 3.1 ➞ 2x more programs
- **Consortium Participation**: No → Yes

https://www.chicagobusiness.com/static/section/chicagos-wealth-divide.html
Achievement of Serving Real Needs

User survey leads to new technology investments

• “We have analyzed results from a patron survey and have changed our investments in technology. We are ready to showcase the new computer workstations, laptops, and other equipment ready for checkout.”

• Libraries respond to user survey results with technology improvements.

https://news.emory.edu/stories/2023/12/er_library_improvements_04-12-2023/story.html
Library data needs story before storage
Storytelling as Information
DIKW Pyramid

- WISDOM
- KNOWLEDGE
- INFORMATION
- DATA
“Where is the wisdom that we have lost in knowledge?/Where is the knowledge that we have lost in information?”

T. S. Eliot, *The Rock*, 1934
Storytelling Wisdom

• Story is a fundamental information form

• Storytelling is central to understanding social, collective, and community meaning-making

• “In story, wisdom often means discovering a way beyond the ways that seem obvious.”

Storytelling Wisdom and S-DIKW

- **S-Data**  
  Basis of information in story

- **S-Information**  
  Data interpretation with context as story

- **S-Knowledge**  
  Actionable information in story

- **S-Wisdom**  
  Which story to tell when, how, to whom, and more

Data Storytelling Toolkit for Libraries

• USA nationally funded by IMLS
• co-PI Matt Turk
• DIY guide to data storytelling for common data uses in libraries
DSTL Research Methods

- interviews (34 participants, 2016-2022)
- questionnaire (28 participants, September 2021)
- ranking exercise (25 participants, April 2021)
- workshop discussions (942 participants, 6 workshops, 2021-2022)
- structured focus groups (5 groups, 55 participants, September-October 2023)
  - ranking, sorting, and writing exercises plus discussion
- user persona development


Questions at this point?

We’ll have more time at the end as well.
Process for DSTL User

https://uiucdstl.wixsite.com/uiucdstl

- Introduction to toolkit and navigation (text and video)
- Reach Audiences (tutorial)
- Choose Motivations and Goals (interactive)
- Structure Narratives (tutorial)
- Visualize Data (interactive)
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Reach Audiences

• Knowledge
• Demographics
• Attitudes
## Quick Guide to Audience Attitudes

<table>
<thead>
<tr>
<th>Attitude</th>
<th>Shared reality?</th>
<th>Tone</th>
<th>Tactics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive</td>
<td></td>
<td>Open</td>
<td>Build trust. Don’t take audience sympathy for granted. Make the story easy to retell.</td>
</tr>
<tr>
<td>Negative</td>
<td>+</td>
<td>Calm</td>
<td>Focus on persuasion. Restate concerns in positive terms to build common ground. Find compromises, even if disagreements continue. Slow down to de-escalate conflict.</td>
</tr>
<tr>
<td>Mixed</td>
<td>![Thumb up]</td>
<td>Open and calm</td>
<td>If some are persuaded, consider the story they need to tell about why.</td>
</tr>
<tr>
<td>Indifferent</td>
<td>![Thumb up]</td>
<td>Curious</td>
<td>Start with why it matters for these specific people. Model the interest that you hope to instill. Keep it simple. Ask questions and wait for responses.</td>
</tr>
<tr>
<td>Polarized</td>
<td>![Thumb down]</td>
<td>Non-reactive</td>
<td>Stay on message. Do not repeat false information. Consider the value of debate strategically. If the intent is to confuse the voters, avoid debate.</td>
</tr>
</tbody>
</table>
## Goals and Motivations

<table>
<thead>
<tr>
<th>Goals</th>
<th>Motivation: Justification</th>
<th>Motivation: Benchmark</th>
<th>Motivation: Achievement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Understanding real needs</td>
<td>Use evidence of needs to justify resources (investments, time, money).</td>
<td>Use evidence of needs to compare with outside standards or trends.</td>
<td>Demonstrate that needs are understood and next steps to meet needs are clear.</td>
</tr>
<tr>
<td>Serving real needs</td>
<td>Design or maintain services based on evidence of needs.</td>
<td>Use evidence of needs met through services to compare with outside standards or trends.</td>
<td>Demonstrate that services are successfully meeting needs.</td>
</tr>
<tr>
<td>Build on strengths</td>
<td>Use assessment of strengths to justify resources that sustain or expand those strengths.</td>
<td>Use evidence of strengths to compare with outside standards or trends and contribute to the larger library community.</td>
<td>Demonstrate that investments to build on strengths are effective and valuable.</td>
</tr>
<tr>
<td>Address deficits</td>
<td>Use assessment of deficits to justify resources that can make improvements.</td>
<td>Use evidence of deficits to compare with outside standards or trends and keep up with the larger library community.</td>
<td>Demonstrate that investments to address deficits are effective and valuable.</td>
</tr>
</tbody>
</table>
Goal: Address Deficits

Motivation: Justification

"We are assessing our library's deficits in [programs or services related to needs] to justify resources that improve [related programs or services]."

We are assessing our library's deficits in services to rural areas following the recent closure of our mobile services. We will use what we learn to justify resources that improve access for remote users at existing library building locations.

"It was with a heavy heart that we closed our mobile library service." [Link](https://www.midweekherald.co.uk/news/23920174.we-made-decision-not-close-mobile-libraries/)

Data Visualization: Consider using a mix of pie, line, and bar charts to depict the inherent challenges or complexities associated with the deficit being addressed.
## Structure Narratives

<table>
<thead>
<tr>
<th>Narrative Structure</th>
<th>Originating Theory</th>
<th>Emotional Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transformation</td>
<td>Campbell, <em>The Hero with a Thousand Faces</em></td>
<td>Awe at transformation, joy of watching a hero triumph</td>
</tr>
<tr>
<td>Continuity</td>
<td>Todorov and Weinstein “Structural Analysis of Narrative”</td>
<td>Stability and resilience despite challenges</td>
</tr>
<tr>
<td>Discovery</td>
<td>Roland Barthes <em>S/Z</em></td>
<td>Mystery, suspense, intrigue, and satisfaction of coming to understanding</td>
</tr>
</tbody>
</table>
What’s your story’s narrative structure?
RISING ACTION
Continuity
Achievement through Building on Strengths

Book Stories: 20 Years of Library Book Plate Celebrations

• Faculty promotion book plating ritual at the University of Illinois at Urbana-Champaign library to celebrate promotion and tenure.

• “Libraries in the midst of pandemic reinventions should consider sustaining, reviving, and innovating new forms of storytelling to extend the impact of the library as the bedrock of academic community.”

https://doi.org/10.5860/crl.84.1.49
Transformation
Justification for Serving Needs

Academic Library use increases student success

“The analysis of multiple data points (e.g., circulation, library instruction session attendance, online database access, study room use, interlibrary loan) shows that students who used the library in some way achieved higher levels of academic success (e.g., GPA, course grades, retention) than students who did not use the library.”

https://alair.ala.org/items/94f5534e-a7e9-4aca-aa54-ce5b4a2d8368
question
mystery
uncertainty
information
revelation
data
inquiry
mystery
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Structure Narratives

Continuity

Transformation

Discovery
Cycle of Story Across Time
Reception × Reiteration × Revisioning × Recreation
Ending Late Fees: A Case for Equity

by Grace McGann on November 1, 2021

On October 5th, public libraries in New York City announced the permanent cancellation of library late fees. Area libraries paused late fees in 2020 in response to the pandemic, but this intentional

https://publiclibrariesonline.org/2021/11/ending-late-fees-a-case-for-equity/
https://www.webjunction.org/events/webjunction/eliminating-library-fines.html
Long Term Vision

The long-term vision is to cultivate data storytelling expertise as a signature expertise of our field, so that when communities have data storytelling needs, they are met at libraries and by librarians.
Questions?
Thank you!

Dr. Kate McDowell
kmcdowel@Illinois.edu
www.katemcdowell.com

LinkedIn.com
kate-mcdowell-86130122/

DSTL
https://uiucdstl.wixsite.com/uiucdstl
References

Dear Data: Visual strategies for developing stories

- Anything can be measured, objects to experiences and beyond
- Full of creative hand-drawn data visualization

https://search.worldcat.org/en/title/960915396
http://www.dear-data.com/all
Counting and What Counts

- Numbers are not more real than other kinds of data
  - “Counting is a lot like being a judge. Before we can count up ‘somethings’ we have to decide what counts as a something.” (p. 179)
- Finding ways to measure value requires both creativity and integrity

https://search.worldcat.org/en/title/1275436066
More by Kate McDowell and Collaborators

- McDowell, Kate. *Book Stories: 20 Years of Library Book Plate Celebrations*. College & Research Libraries, January 4, 2023. [https://doi.org/10.5860/crl.84.1.49](https://doi.org/10.5860/crl.84.1.49) (open access)

- McDowell, K. and Cooke, N. (2022, October). *Storytelling and Social Justice: A Pedagogical Imperative*. The Library Quarterly. (HTML version free until 1/1/23: [https://doi.org/10.1086/721391](https://doi.org/10.1086/721391))


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