

Visualisation and Data Storytelling

AIDI 1001

Week 8

Presenting Data Stories

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Week 8

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Week Outcomes

- CLO 1 – Assess strategies to communicating complex information and findings to stakeholders to augment decision making.
 - Evaluate presentation approaches according to communication strategies.
- CLO 3 – Produce stories, rhetoric, and data stories to build calls to action for decisions and next steps in accordance with business objectives.
 - Choose presentation approaches and visualisations for data stories.
 - Assess data stories for specific stakeholders and decisions.
- CLO 5 – Develop and deliver role play presentations to business and technical stakeholders using storytelling and data stories that complements ones leadership and presentation style.

Class activity- Produce and Present Data Stories

Ask Your Self

1. Ask your self

- What is the difference between a story and a narrative?
- Which kind of people, videos, and visuals do you remember facts and data points from?
- Why did certain books, movies, and TV shows really pull you into the story?

Presenting Data Stories

Data Narratives

- Data narratives are the presentation, telling, style, and reflection of stories
 - Narratives navigate stories and may not follow the order of events
 - Narratives are NOT stories
 - **Guides stakeholders how to think analytically about data**

Data Narratives

- Data Narrative written in the New York Times (2004)

Hurricane Frances was on its way, barrelling across the Caribbean, threatening a direct hit on Florida's Atlantic coast. Residents made for higher ground. But far away in Bentonville, Ark., executives at Wal-Mart Stores decided the situation offered a great opportunity for one of their newest data-driven weapons -- predictive technology.

A week ahead of the storm's landfall, Linda M. Dillman, Wal-Mart's chief information officer, pressed her staff to come up with forecasts based on what had happened when Hurricane Charlie had struck several weeks earlier. Backed by the trillions of bytes' worth of shopper history, stored in Wal-Mart's data warehouse, she felt the company could "start predicting what's going to happen, instead of waiting for it to happen," as she put it. (Hayes, 2004)

When Hurricane Charlie hit a few weeks earlier, Wal-Mart collected a lot of data from that experience. What goods were sold, when they were sold and in how much quantity. Wal-Mart also learned what products they ran out of and the time it took to actually run out. With all this data, Wal-Mart treated Hurricane Charlie as a "trial run" for what to expect for Hurricane Frances. So when Linda said "start predicting" she was referring to how they can predict what products people were going to buy and when so they will be ready for Hurricane Frances.

Effective Data Narratives

- **Visual, clear and coherent**
 - Narratives have key visual scenes that lay out situations, the hero's challenges, and how the stakeholders can follow the hero's struggles with business problems
 - Each visualisation represents a single or several visual scenes
- **Personal connection, emotion, and empathy**
 - Personally connects stakeholders to visualisations and data
 - Personally engages stakeholders
 - No dry / boring facts and data
 - Connection inspires stakeholders to take action and share stories
 - Connection is two way dialog between presenters and stakeholders
 - Narratives ask thought provoking questions
 - Stakeholders explore data and ask questions to better understand the presenter and the data
- **Arcs, suspense, and always wanting more**
 - Arcs are continuing storylines used in television, books, video games, and film
 - Narratives have mysteries enticing stakeholders to learn more
 - Narratives stopping at key moments (cliff hangers) enticing stakeholders to know more

Data Narrative Examples

- **Visual, clear and coherent**
 - Jerry is presenting to the executive board about the company merging with their competitor. He lays out a visualisation of the merger's situation. He shows the board the scorecard and dashboard used for the different initiatives in the company affected. He introduced the heroes, the key program managers, and their struggles with the business problems such as the productivity and funding issues they were facing. Jerry showed their struggles over the last six months with bar and line charts. He then showed a bar chart showing the impact of three options the board can take to help the program managers, not only to save the merger, but to also save the day.
- **Personal connection, emotion, and empathy**
 - Sue was telling a data narrative about the progress of a strategic program. When looking at the people in the room, she realized that she must keep her narrative short, focusing on the top three outcomes of the program and the people the audience knew and liked. Because she wanted her narrative to be memorable, she excluded talking about deep details that she knew would distract her audience. She shared progress using bar charts and asked key questions about the strategic program. Stakeholders clicked the bar charts on their laptops and saw more details only when they were ready. One stakeholder looked at those details and saw some data points included assumptions on why they were excluded and asked for further explanation.
- **Arcs, suspense, and always wanting more**
 - Sally is continuing her data narrative on the effectiveness of project management. This is the third time they asked her to come back and continue her talk. Sally feels they're inviting her back because she ends each meeting with a thought provoking visualisation with a crucial question on project management. Then tells them to stay tuned to find out more.

Credibility of Narratives

- **Memorable and inspires engagement**
 - Connects with stakeholders' knowledge, experiences, and world view
 - Not doing so inspires skepticism
 - Use Imagery, metaphors, fairytales, and parables
- **Visual and built on truth**
 - NOT all parts of the narrative need to be true
 - “We’re delayed by one week on account of gremlins. We made sure the tech team stamps them all out.”
- **Visuals to show importance**
 - “If we don’t address these problems now, they’ll turn into a dragon. In the best case, it will toast some of us to cinders. Worst case, it will gobble all of us whole.”
- **Visuals to remember lessons**
 - “Remember how the scorpion asked the frog that he could ride on the frog’s back so he could cross the river? The frog first refused because the frog thought the scorpion would sting him and then they would both drown in the river. The scorpion promised he wouldn’t. So while they crossed the river together, the scorpion stung the frog. The scorpion apologized. ‘Sorry, I couldn’t help myself.’ Take this into consideration when we are working with our business partners.”

Narrative Perspectives

Perspectives are views of the world from which stakeholders experience the narrative

- **Audience-centred perspective (we)**
 - Stakeholders are part of the presenter and narrative
 - “We are on the mountaintop looking on the horizon.”
- **Personal first-person perspective (I)**
 - The presenter is the perspective of narrative and stakeholders follow along
 - “I was making my way to the board room and I passed our accountant. She was looking at her screen shaking her head.”
- **Organizational third-person perspective (they, he, she)**
 - Narrative has a broad background and unfolds from above handling many characters
 - “He was making his way to the board room. He passed the accountant. She was looking at her screen shaking her head.”
- **Traditional perspective (I)**
 - Merely a retelling of events, facts, and intensions in chronological order that doesn't deliberately draw stakeholders in
 - “Monday I finished the accounting. Tuesday I attended a board meeting. Wednesday I flew to Arizona.”

Narrative Perspectives

- **Modern perspective (we)**
 - Narrative explains structures and general trends and is deliberately vague and imprecise
 - “On Monday, we finished the accounting to prep for the meeting. But because there was too much to finish, we had a change of plans. Instead of attending the board meeting and then the meeting in Arizona, we just cancelled the meeting in Arizona.”
- **Storytelling game perspective (we, you, I)**
 - Engages stakeholders to be part of the narrative to experience it and explore it
 - “We discovered that a competitor beat us to the punch. Mike, pretend you’re the marketing executive. Sally pretend you’re the financial officer. Mike and Sally, act out what happens next.”

Thinking About Data Analytically

- **Construct a clear path for stakeholders with a mental image from problems to solutions**
 - Image of what the problem is and the decisions needed to made, and likely solutions needed
 - Flesh out image using stories and visualisations
 - Do not be predictable
- **Use narrative-generated emotions related to those problems, decisions, and solutions**
 - Stakeholders inspired to act on something specific by seeing it, touching it, and tasting it
 - Stakeholders share in the experience of events though didn't live those events
- **Use framing to build concise paths with data narratives**
 - Framing is when questions and answers are rephrased to purposely change stakeholders
 - Framing changes stakeholders' mindsets and how they think during when presented with problems, options, decisions, and solutions
 - Julie is presenting data on how 10% of customers are injured by a defect in your product. When she presents this data to her stakeholders she frames the problem with an emotional connection: “Is it our job to hurt our customers? Right now our product is hurting one out of ten people. Here are our options to rectify this.”

Assumptions Fill Gaps

- **Stakeholders make assumptions to fill in any gaps in your data narratives using their own understanding of words and ideas**
 - Include just enough information so stakeholders correctly fill in gaps
- **Language**
 - Use language that all stakeholders consistently use and use in the way across business and departments
 - Include a drawing of the process and the common terminology in that process
 - Tom is presenting data on an ERP. Many incorrectly assumed that he was talking PeopleSoft, SAP, or the home grown solution. To reduce confusion, Tom should use the word "SAP".
- **Importance**
 - Use visualised information that correctly displays what is really **important or not important** at all
 - Use green as the most common color in the presentation
 - Make bars red, yellow, and green
 - Some objects and numbers in Tom's charts are red. He used this because the colour stands out.
 - Stakeholders assumed the colour red means there is a problem. To reduce confusion, Tom should use a different colour.

Assumptions Fill Gaps

- **Complete**

- Specify what information is shown and not shown
 - Showing only the years 2017 and 2018
 - Stakeholders assume what they see all the information
- Tom presented operational data for the last five years, only focusing on the top trend. He excluded the other trends because he wanted stakeholders to just think about that top trend. Stakeholders assumed that is all the data available for all trends and their questions accordingly. To reduce confusion, Tom should specify what information is shown and not shown.

- **Grouping**

- Use standard colours and symbols, and language for grouping to reduce assumptions on what is related and not related
 - Put a bar chart and line chart next to each other
 - Put three bar charts in a certain order
- Tom has charts that share the same colors. The audience assumed that an orange line in one chart was related to an orange bar in one and an orange pie slice in another. To reduce confusion, Tom should use standard colours.

Comparing Presentations

Scenario #1

1. Break up into groups
2. Watch the videos
 - Storytelling with Data (8.25 mins)
 - <https://www.youtube.com/watch?v=IIMHicxQ0LY>
 - Using data storytelling - Qlik Sense (2.25 mins)
 - https://www.youtube.com/watch?v=UCAJy_F2Weg
 - While watching consider how you can
 - Use the tool to tell better and clearly narratives
 - Compressing knowledge and understanding more information in less time
 - Making personal connections
3. Discuss what was learned during the lesson
 - Visual, personal shared connection, emotional, and ending with them wanting more

Comparing Presentations

Scenario #1

1. As a group address this scenario

- You are present different ways of visualising KPIs. You want your stakeholders to consider three ideal options and agree that one of those options is the best. As a group, draft a personal first person data narrative that is clear, visual, and creates a personal connection.
- Refer to <https://public.tableau.com/en-us/s/gallery/20-ways-visualize-kpis?gallery=votd>

2. Each group presents a three minute summary to the class

Narrative Structures

Traditional Five-Act Structure

- Common in literature works such as novels and plays
- 1. Exposition**
 - Introduces background, setting, events before the main plot, and back stories
 - 2. Rising Action**
 - Series of events that build to point of great interest
 - 3. Climax**
 - Turning point which changes the hero's fate
 - 4. Falling Action**
 - Hero is winning or losing against the villain
 - 5. Dénouement (Resolution)**
 - Conflicts are resolved and loose ends are tied up

Four-Component Structure

- **Data narrative structure work better with a similar four component structure**
 - 1. Setup**
 - Establishes the emotional connection and hooks stakeholders to wanting to know what happens next
 - 2. Context**
 - Paints a visual picture to stakeholders and eliminates any gaps in the setup
 - 3. Options**
 - Presents options for stakeholders to use to create the ending
 - Options are choices for resolving the problem.
 - Literature stories has endings already written
 - 4. Call-to-Action**
 - Statement of what stakeholders needs to do
 - Powerful, emotional, and motivating

Arc Narrative Structure

- Research and developed practices by University of Manitoba
- Present in video formats where animation and illustrated characters shows changes and comparisons

1. **Establisher**

- Give information. Limited to no action.
 - Show a still image or number on the screen

2. **Initial**

- Gives new information and builds up with action
 - Shows a few numbers on the screen with some animation

3. **Peak**

- Video and audio effects used to grab attention.
 - Fast past images showing changes in information using bright colors and sound effects

4. **Release**

- Builds on what was already mentioned using repetition
 - Repeats information and visuals so information is remembered long after the video is over

In Each Arc Phase

1. Questions

- Posed at the beginning of a phase
 - “Why do you think more bottled water is being sold?”
- Builds attention before the Peak phase

2. Take-aways

- Given at the ending of a phase for messaging and helping to remember the message
 - “90% of doctors agree that the majority of us are dehydrated.”

3. Tension builder

- Builds engagement in what’s coming next
 - Facts that talk about the dangers of dehydration on health
- Often used before the Peak phase

4. New Fact

- New facts are given to help the audience understand what is being presented during the video
 - “Drinking 10 glasses of water a day is a myth”.

5. Repetition of facts

- Facts are repeated so they are remembered
 - Repeating “People are buying more bottled water because of slick marketing.”

Choosing Presentation Approaches

Scenario #2

1. Each randomly chooses a stakeholder group
2. Break up into stakeholder groups
3. Watch the videos
 - Storytelling in Business: Data Storytelling (6.5 mins)
 - https://www.youtube.com/watch?v=PNo_q5ZnKtw
 - Understanding Data Videos: Looking at Narrative Visualisation through the Cinematography Lens (19.5 mins)
 - Watch 07:06 – 11:08 – Narrative Structure and Analysis
 - <https://www.youtube.com/watch?v=t3K1JfMJtg>
 - While watching, consider how four-component and Arc-structures can also be used

Choosing Presentation Approaches

Scenario #2

1. Read “Chapter 8: Putting it All Together” section of textbook. While reading, consider the following...
 - How to use a first person narrative to present to your stakeholder group
 - How videos can be used to tell the data narrative
2. As a group, complete the six lessons in the chapter for your stakeholder group. Create a first person version and third person version of a data narrative that covers those lessons. Create a short story board showing a potential video approach. Discuss the strengths of each presentation approach.
3. Each group presents three minute summary to the class

Presentation Bias

Reflect and Exchange

1. Write down a question about what always draws you into a data narrative. Provide an example from a story, book, or movie.
2. Take into consideration what was learned during the lesson
3. Exchange question with peers from technical, business, management, and executive stakeholder groups to discuss answers

References

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