Data Visualization and Infographics: Using Data to Tell Your Story

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Session Outcomes

Participants will be able to:

1. Identify the process and analytical design principles required for effective data visualization.

2. Evaluate the usefulness of data visualization techniques and infographics for making meaning of and sharing higher education data.

3. Identify tools and resources for getting started with data visualization and infographic design.

The Beauty of Data Visualization

Link: http://www.ted.com/talks/david_mccandless_the_beauty_of_data_visualization.html

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Excellent Examples are Everywhere

- ESPN

  http://www.espn.com

- National Weather Service

  http://www.weather.gov/

Tell Your Story With Data

- Collect your data
  - primary and/or secondary sources
- Think, Think, Think
  - Question
  - Explore
    - trends, patterns, differences, relationships
    - across categories, space, time
  - Identify your story
- Design your visual
  - start simple
  - keep it clear and interesting
  - keep your audience in mind

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Analytical Design Principles
(Tufte, 2006)

1. Comparisons, Contrasts, Differences

2. Causality, Mechanism, Structure, Explanation

3. Multivariate Data

4. Integrate Words, Numbers, Images, Diagrams

5. Describe and Document Evidence

6. Content Counts Most of All

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Comparisons, Contrasts, Differences

Carte Figurative des pertes successives en hommes de l'Armée Française dans la campagne de Russie 1812-1813. Dressée par M. Minard, Inspecteur Général des Ponts et Chaussées en retraite. Paris, le 20 Novembre 1869.
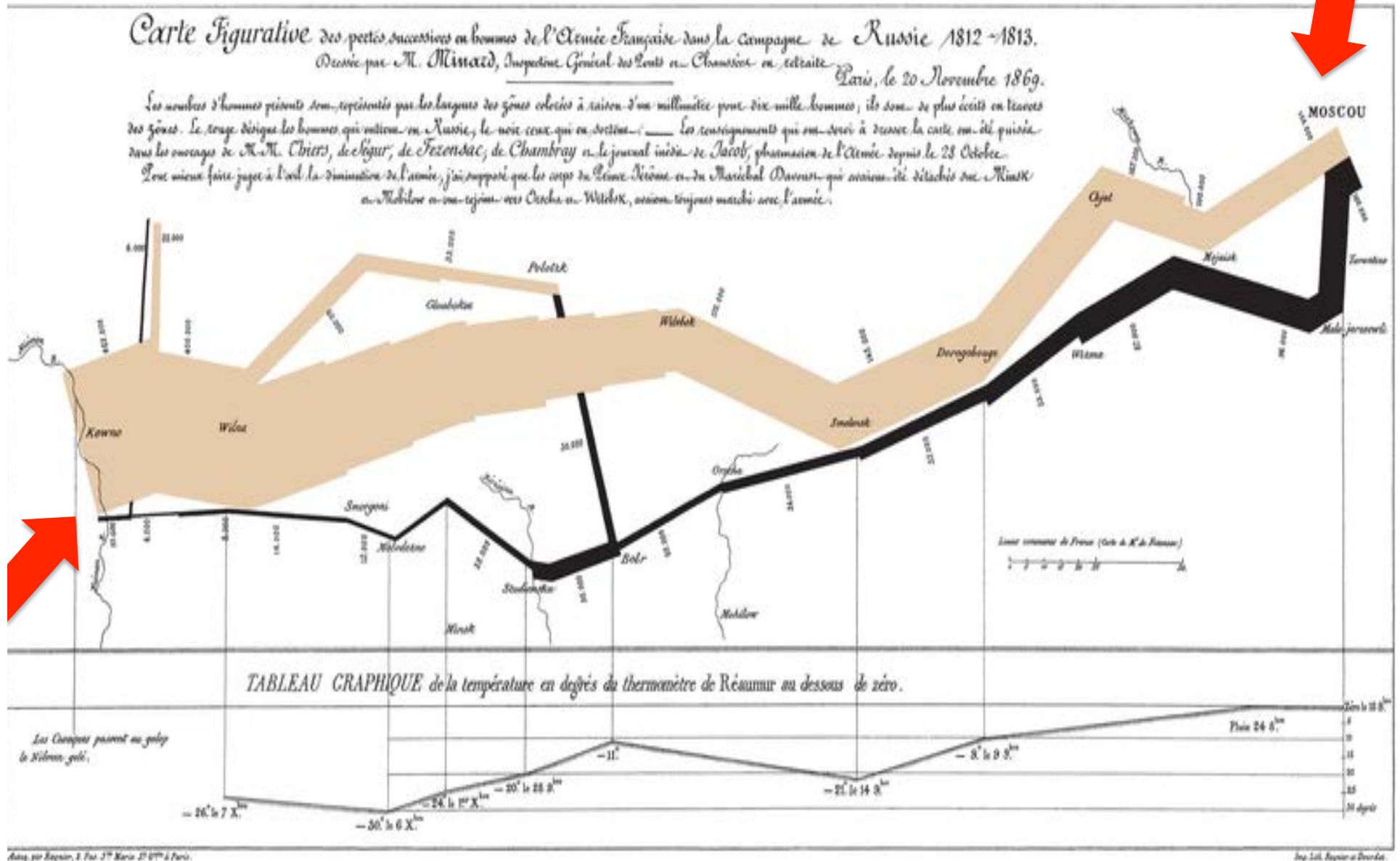
Causality, Mechanism, Structure, Explanation
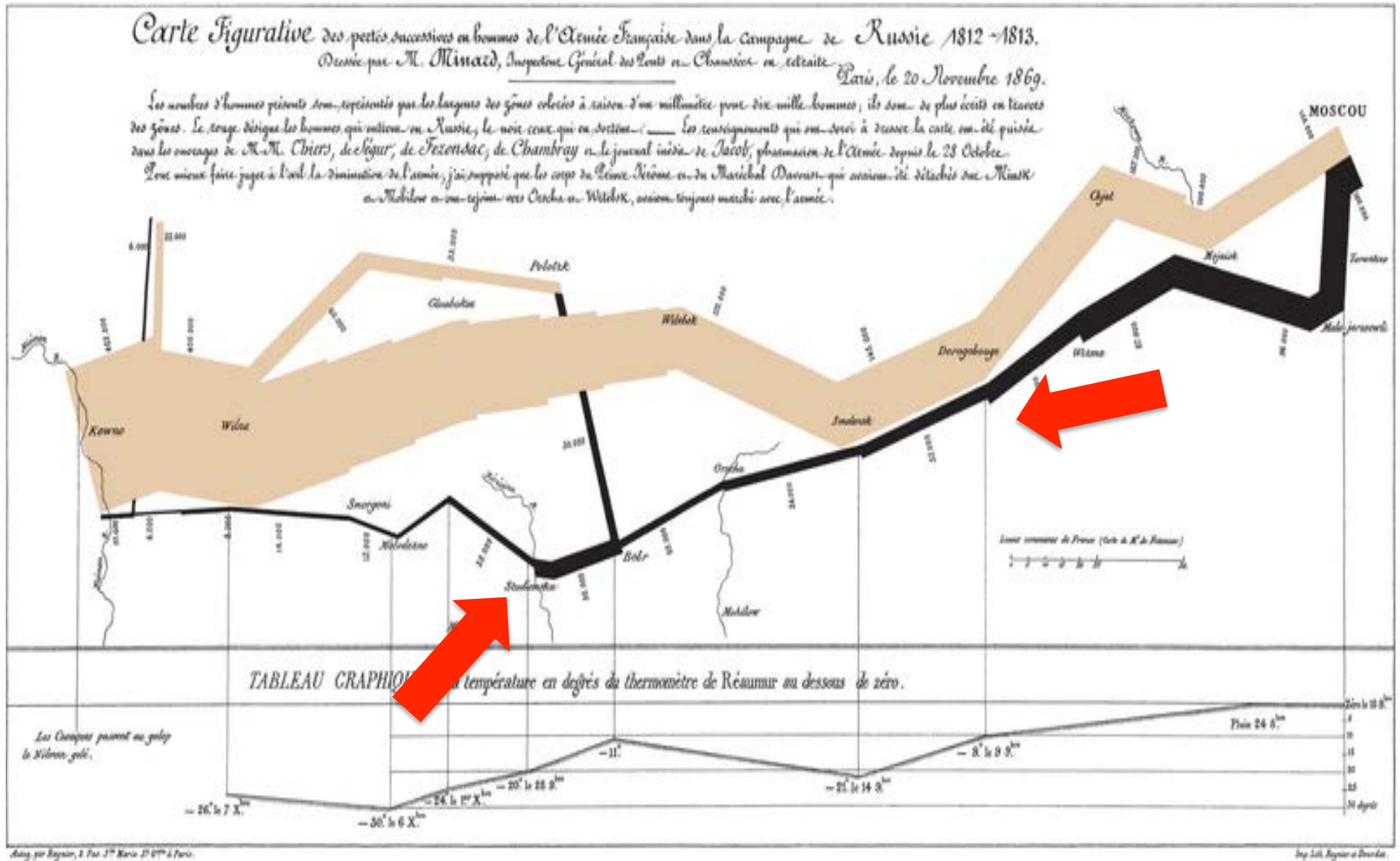
Multivariate Data
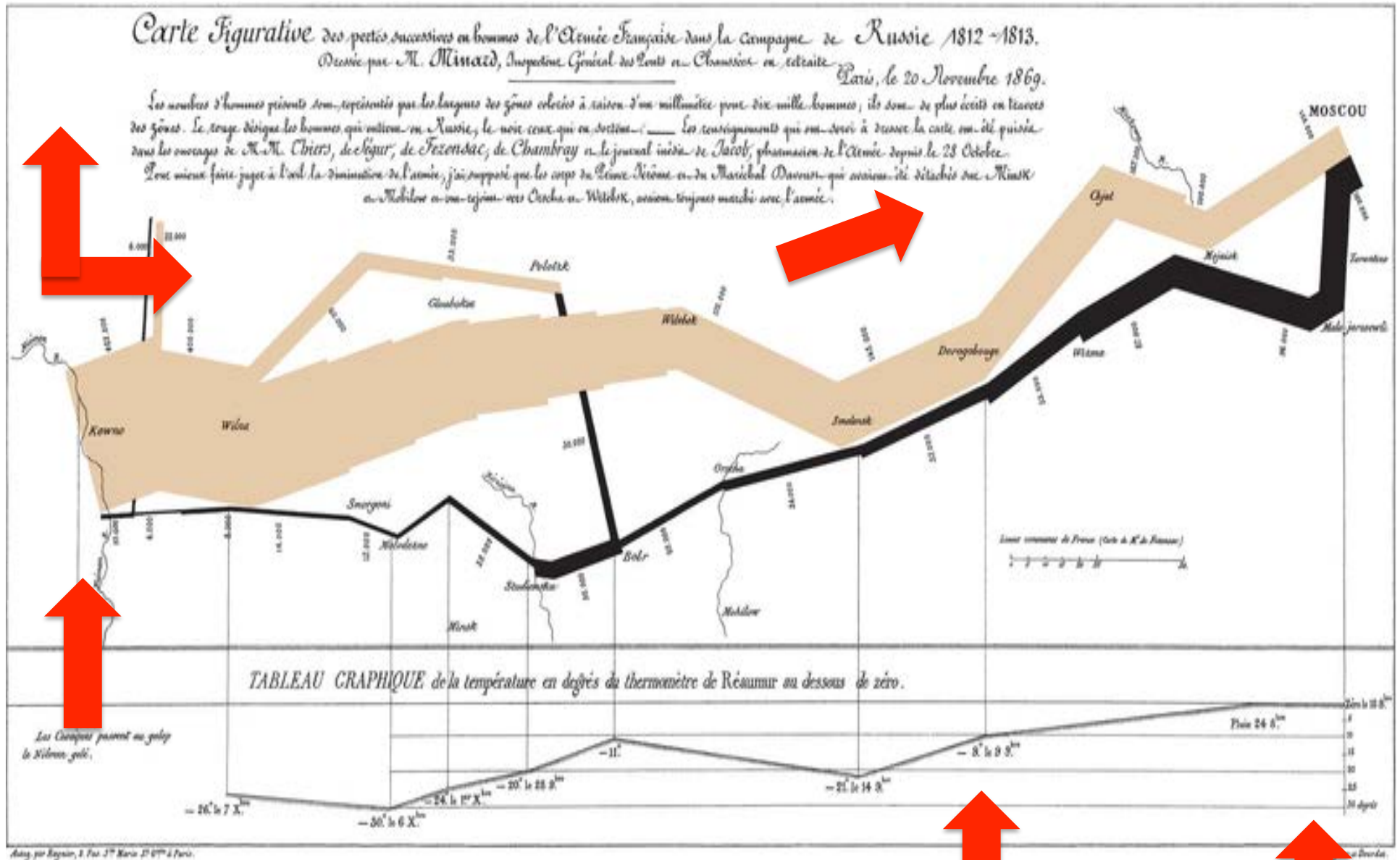
Integrate Words, Numbers, Images, and Diagrams
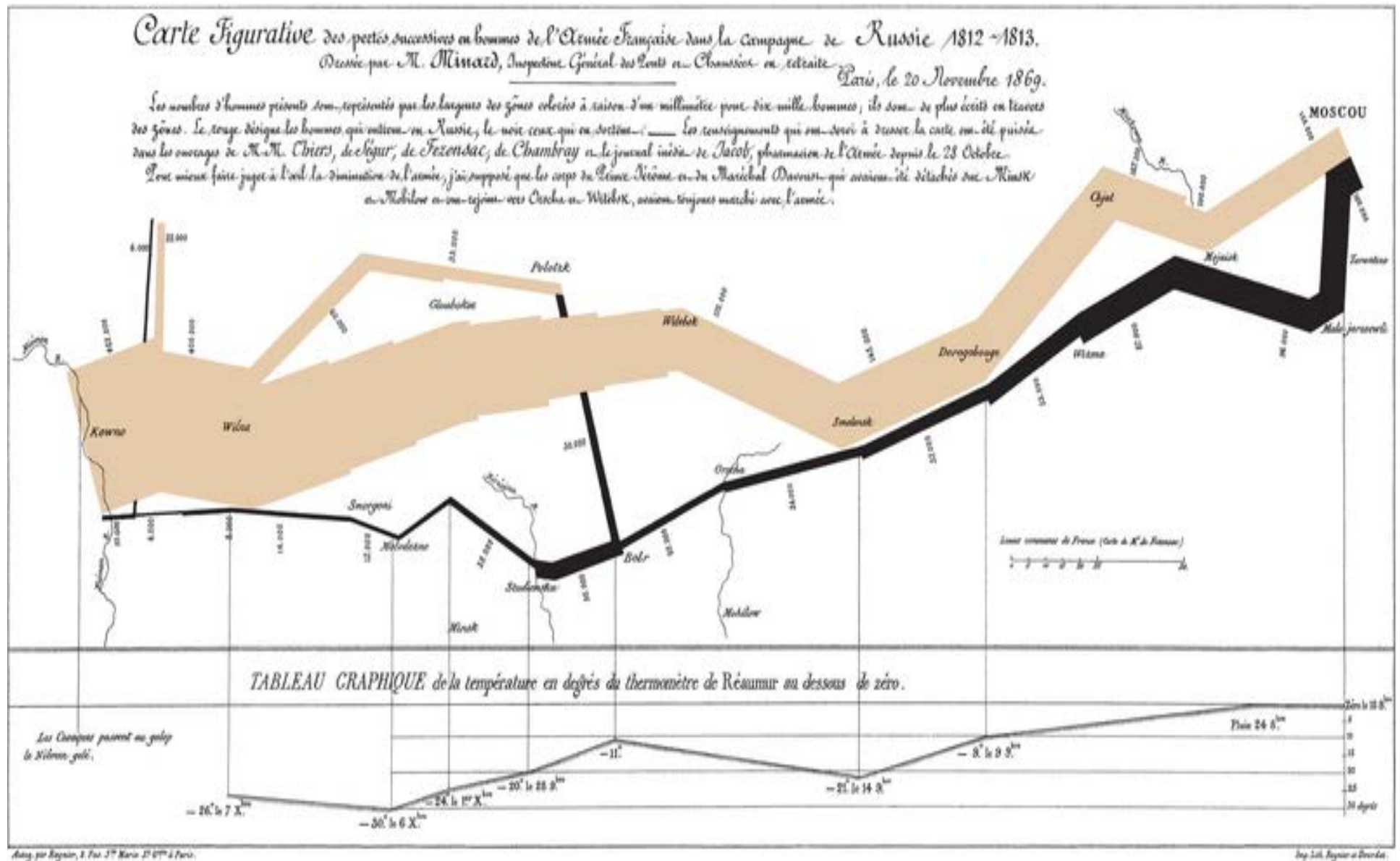
Describe and Document Evidence
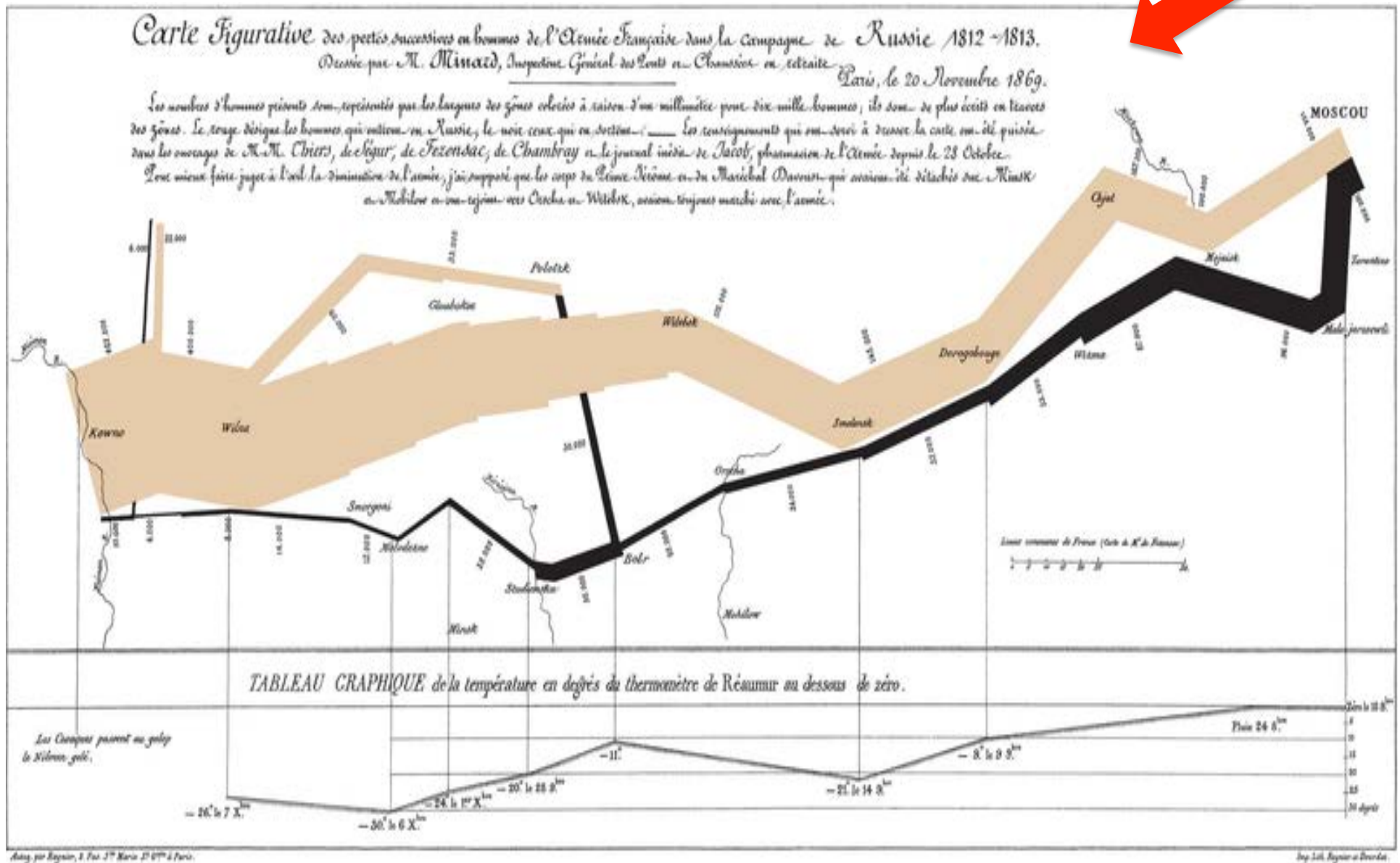
Content Counts Most of All

Infographics

Information

Visual Learning

Graphic Design
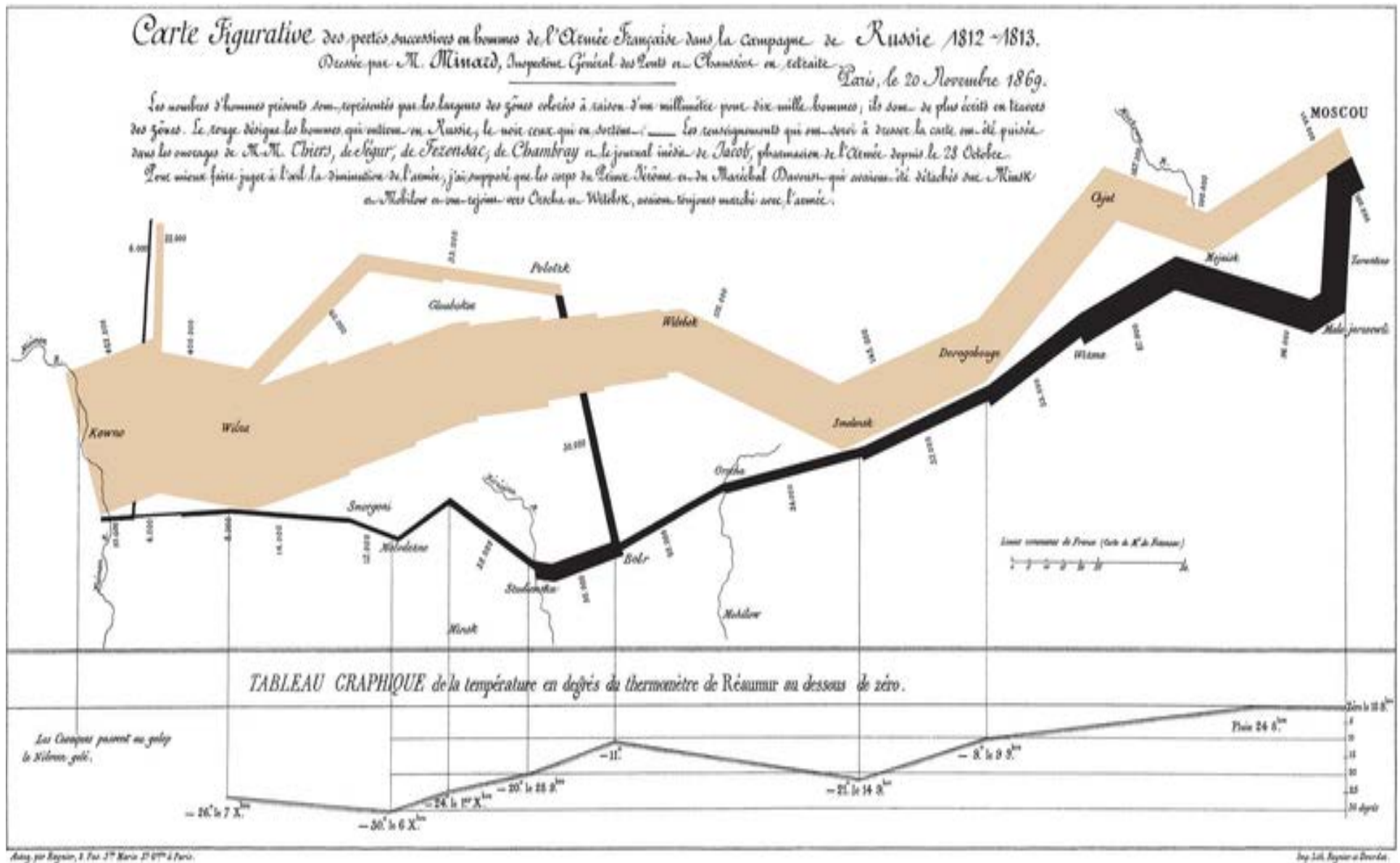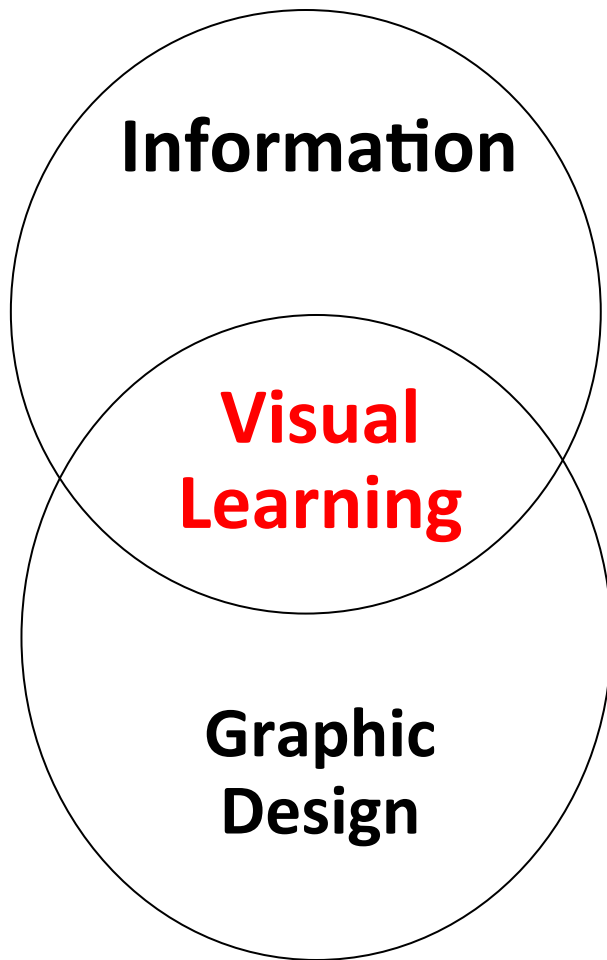
"A visualization of data or ideas that tries to convey complex information to an audience in a manner that can be quickly consumed and easily understood"

Smiciklas (2012, p. 3)

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Types of data can be visualized
(Smiciklas, 2012)

- **Statistics** – KPIs, surveys, research
- **Processes** – pathways, customer service
- **Ideas** – concepts, theories, thought leadership
- **Chronology** – history, timelines, schedules
- **Geography** – metrics by region
- **Hierarchy** – organizational structure
- **Relationships** – internal, external, products/services
- **Personality** – brand, culture

Who is doing this well?

- Journalists (e.g., The Chronicle, USA Today)
- Bloggers
- Non-profits (e.g., Educause, PewInternet)
- Marketing agencies
- Federal, state, and local government agencies
- Others?

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Examples from Higher Education
(the good and the bad...)

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Analytical Design Principles
(Tufte, 2006)

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3. Multivariate Data

4. Integrate Words, Numbers, Images, Diagrams

5. Describe and Document Evidence

6. Content Counts Most of All

Examples from Higher Education:
Statistics (KPIs, Survey Results, Research)
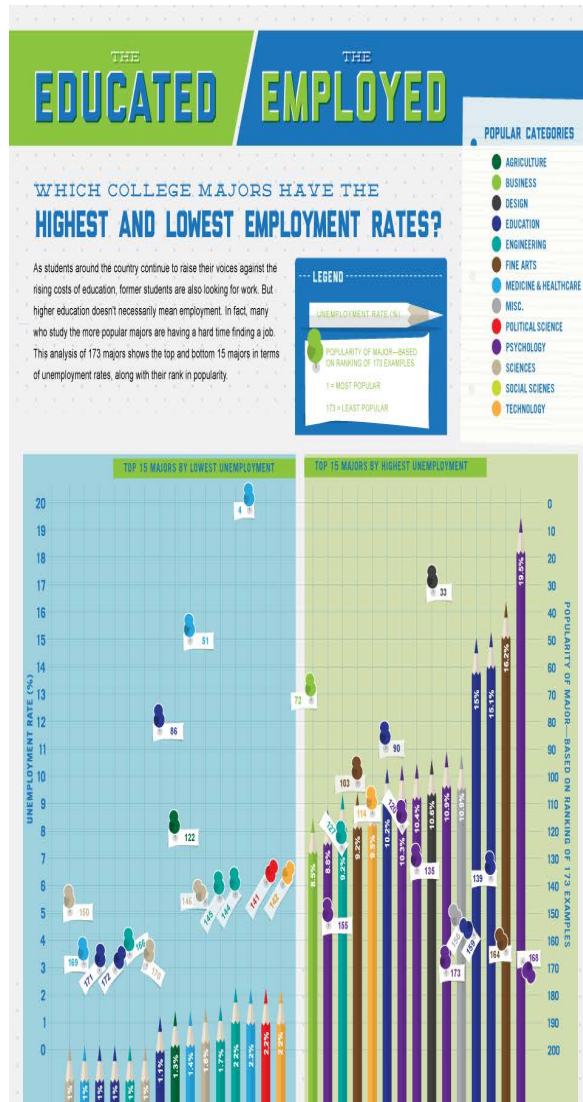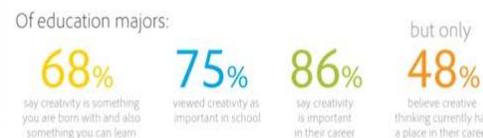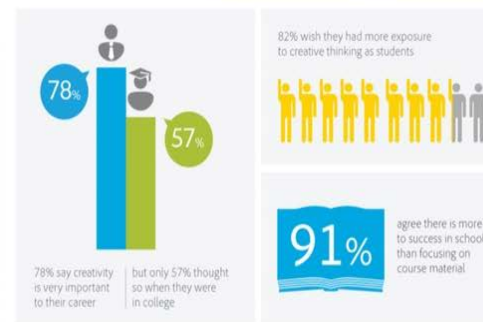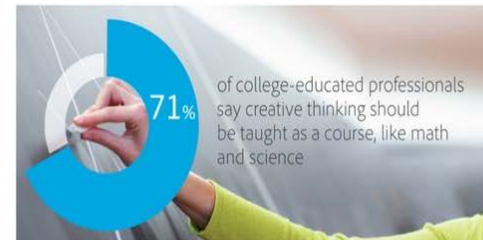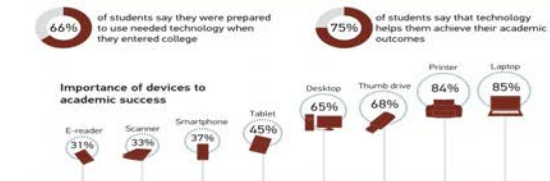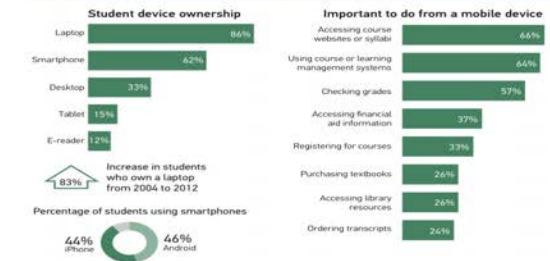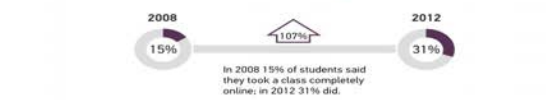
Examples from Higher Education:
To Explore a Question

Examples from Higher Education:
Processes and Pathways
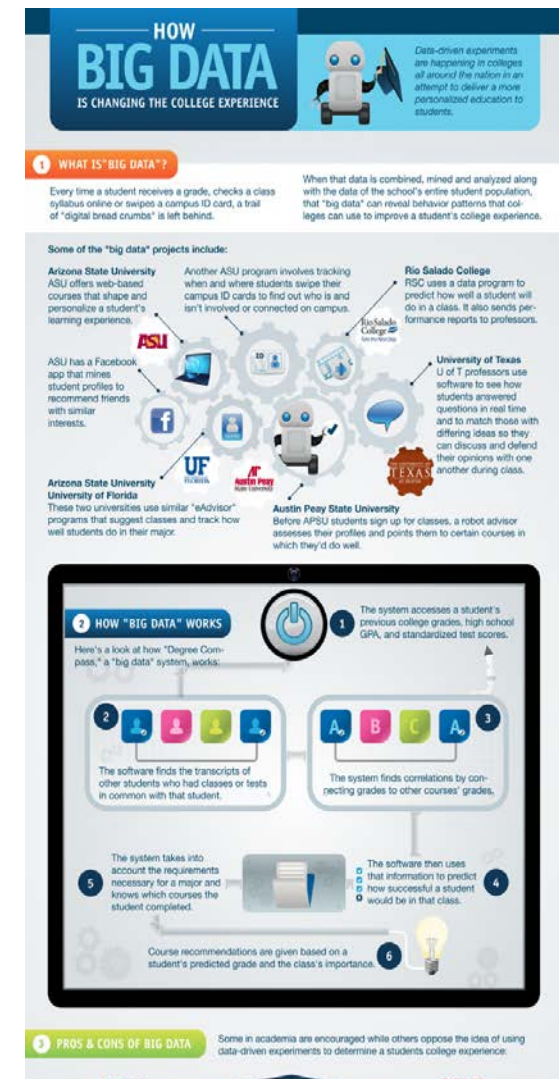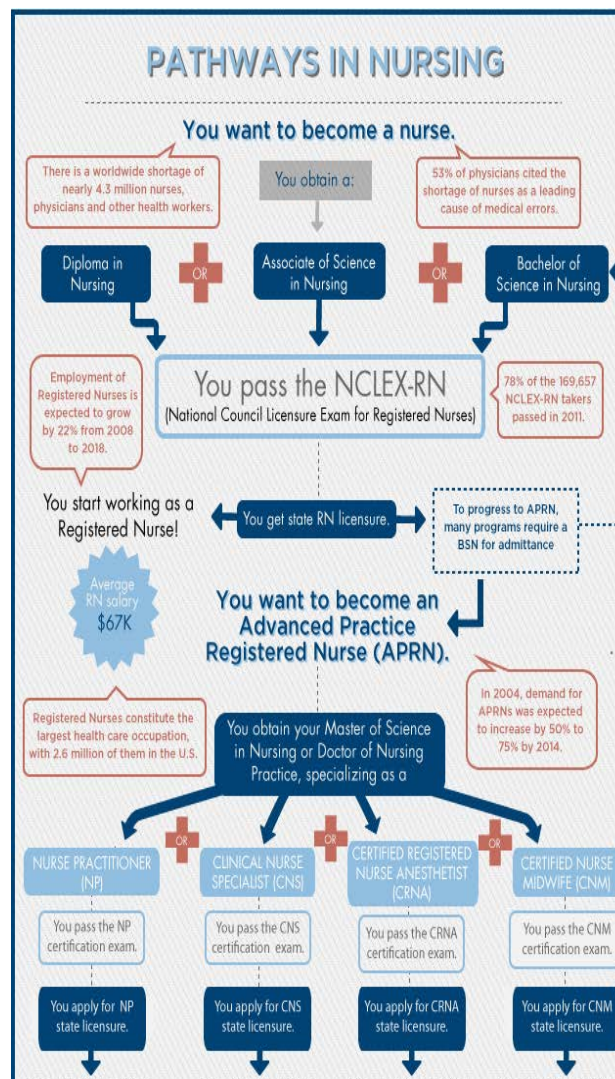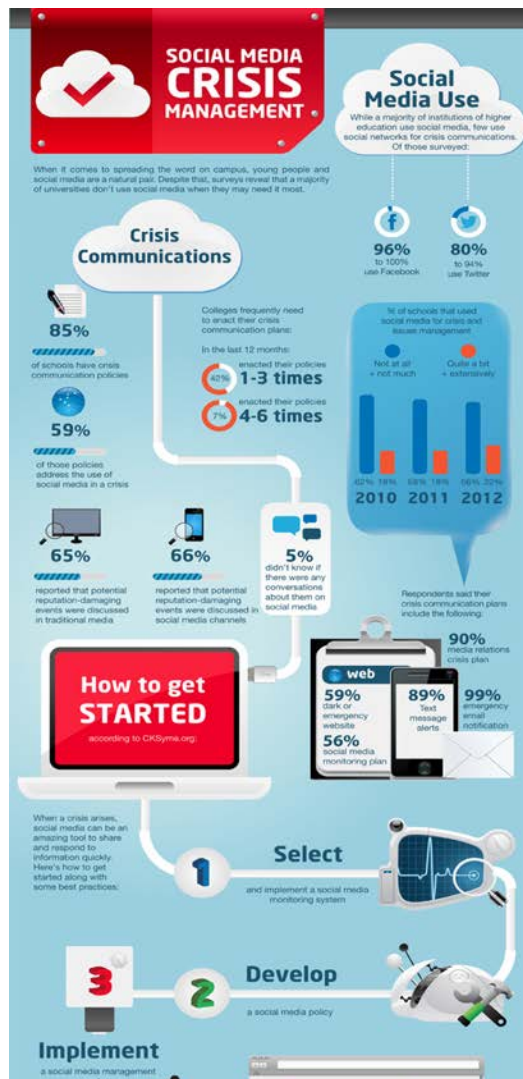
Examples from Higher Education:
Ideas/Concepts/Thought Leadership
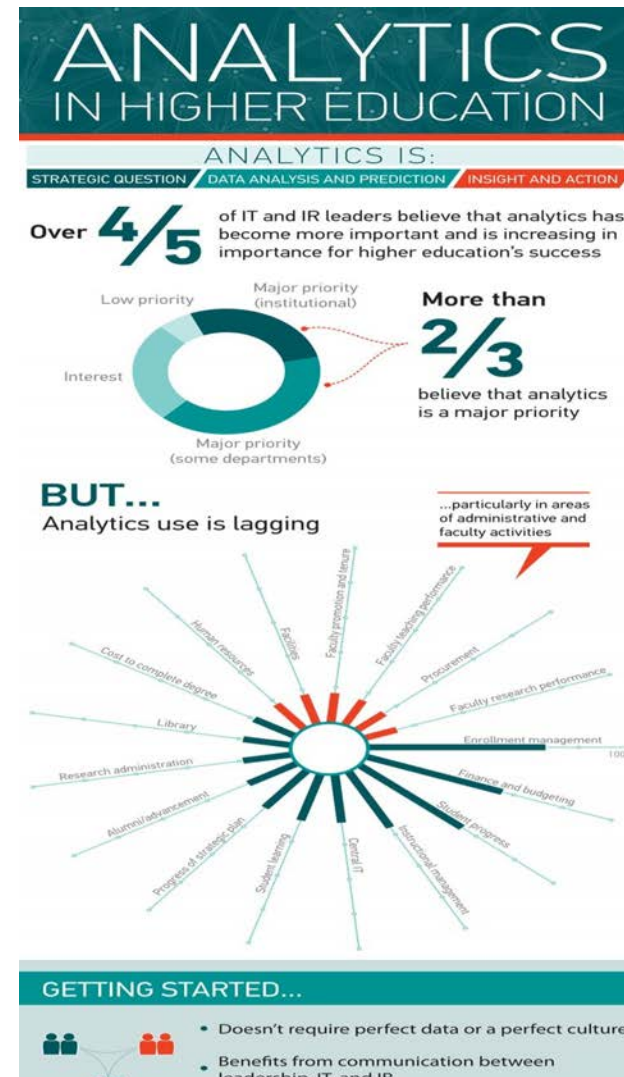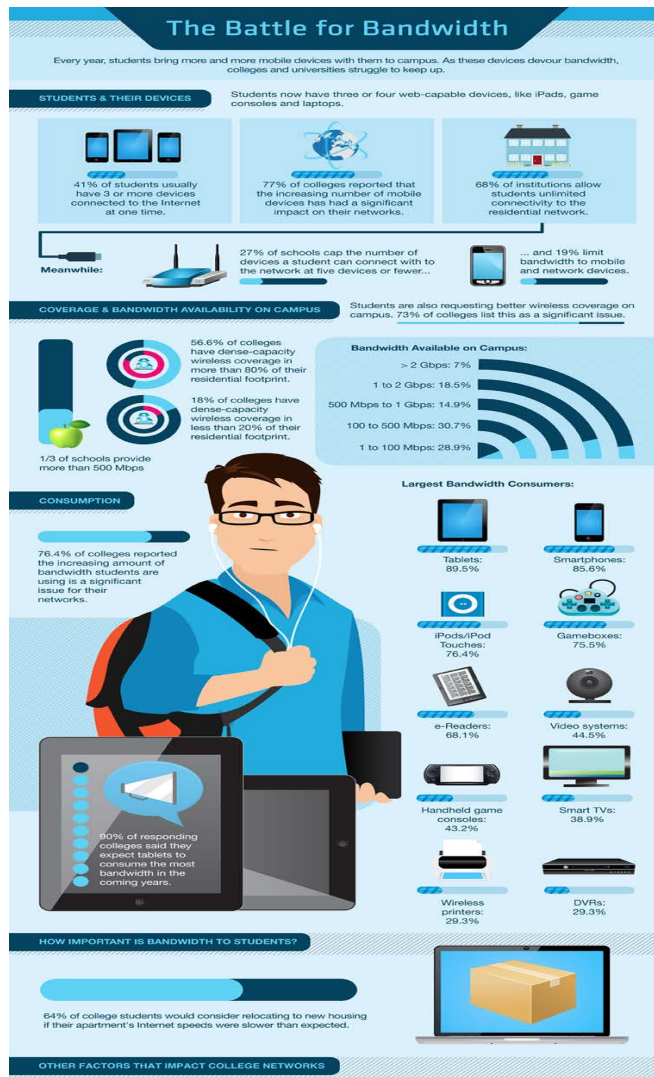
Examples from Higher Education:
Relationships/Patterns of Behavior
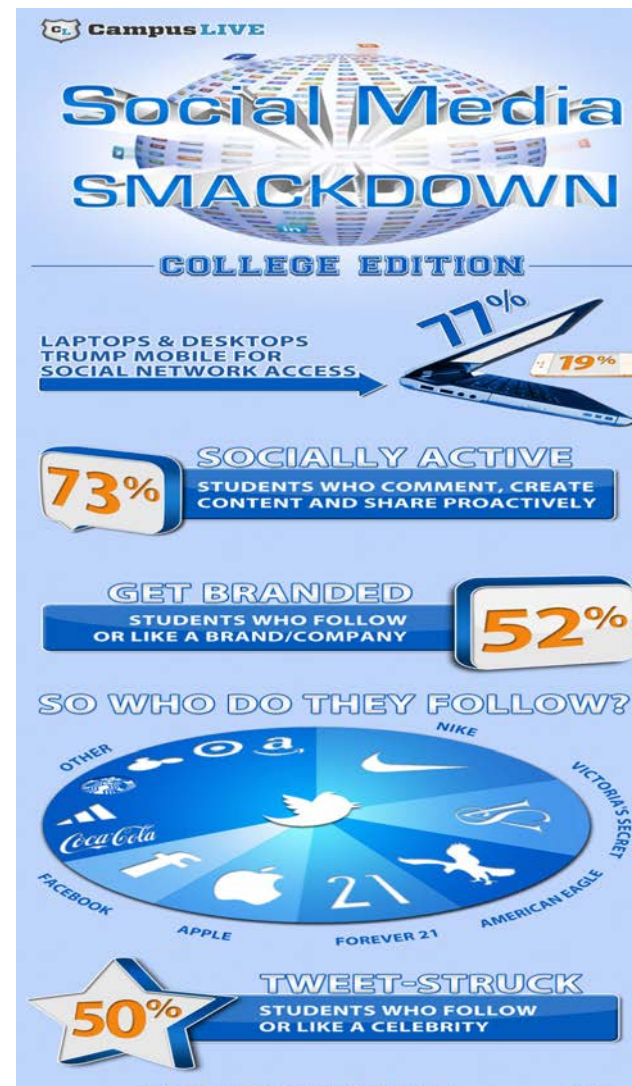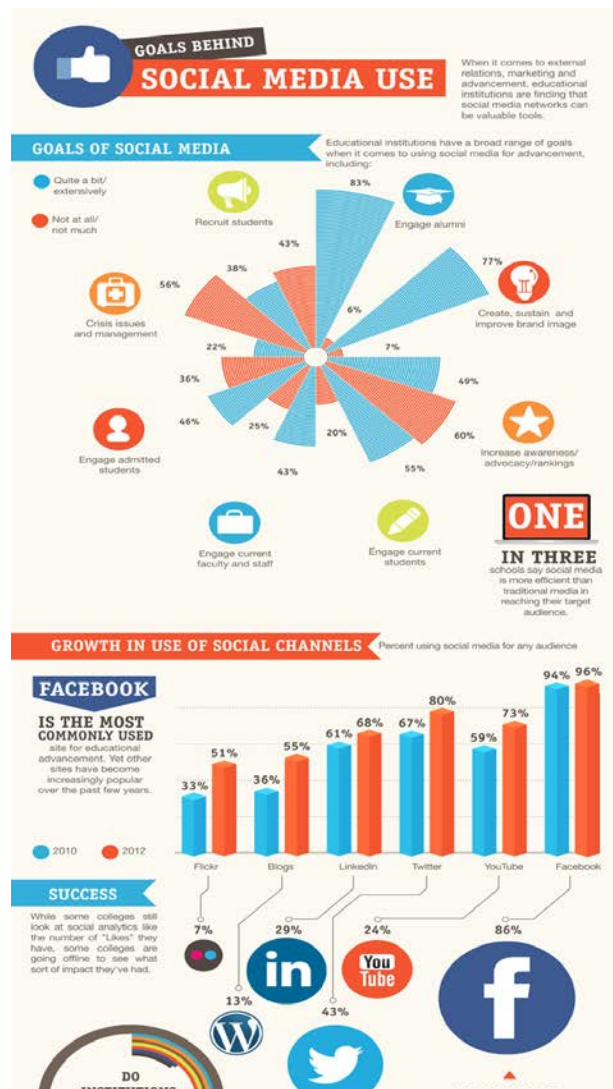
Examples from Higher Education:
Student Profiles/Peer Comparisons
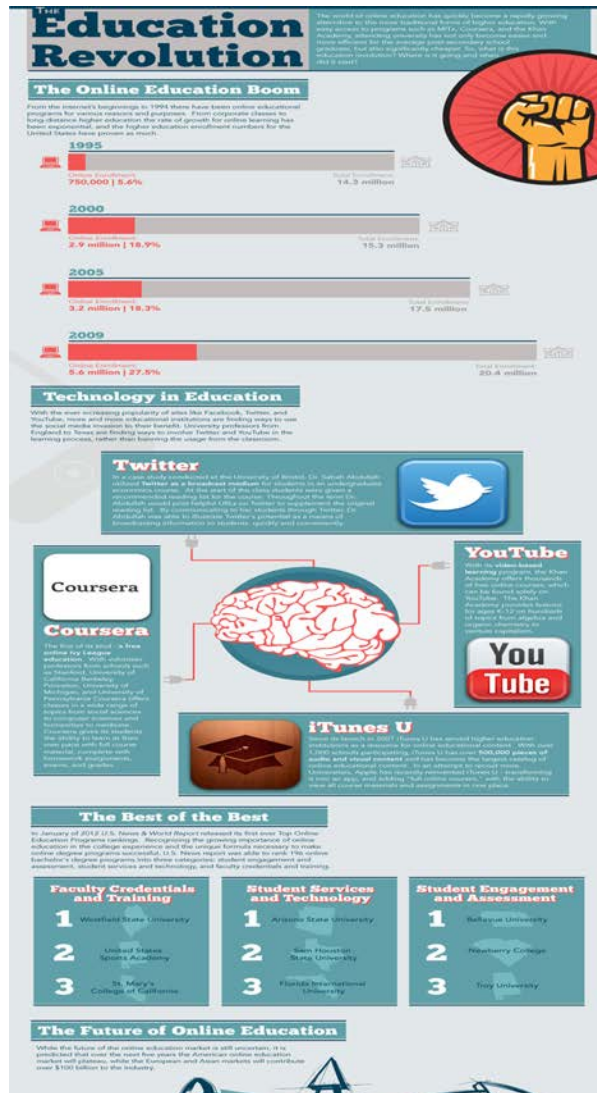
Examples from Higher Education:
Geographical
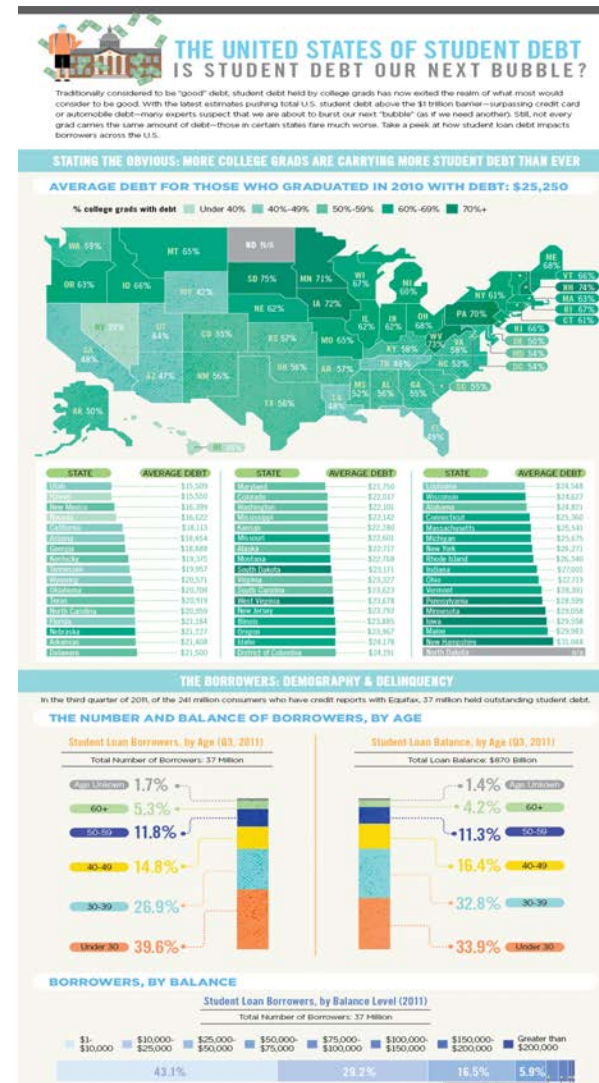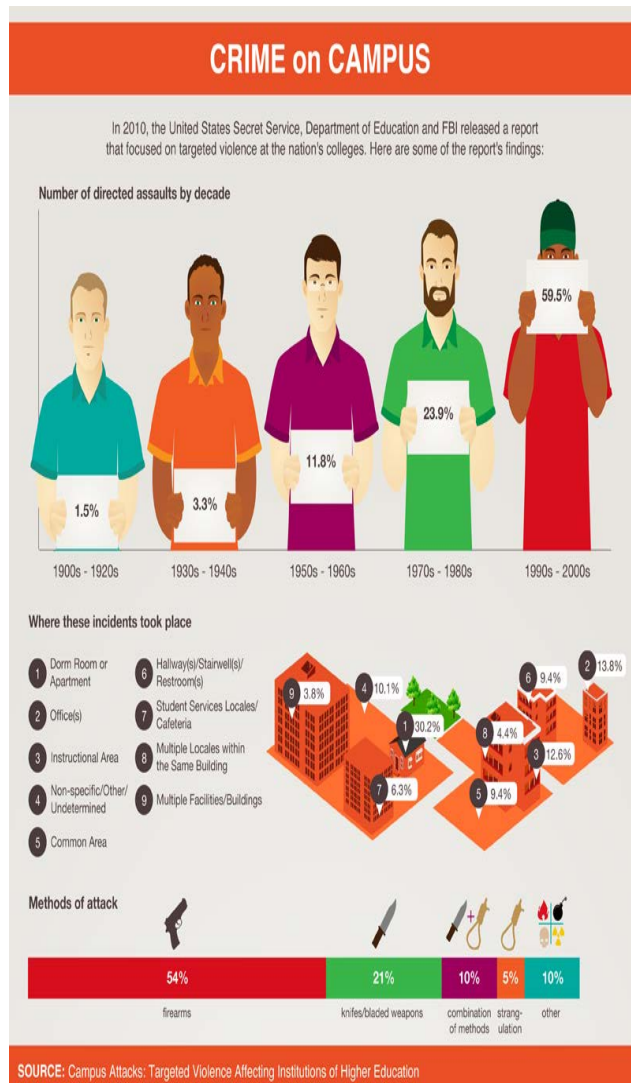
Examples from Higher Education:
Chronology (History, Timeline, Schedules)
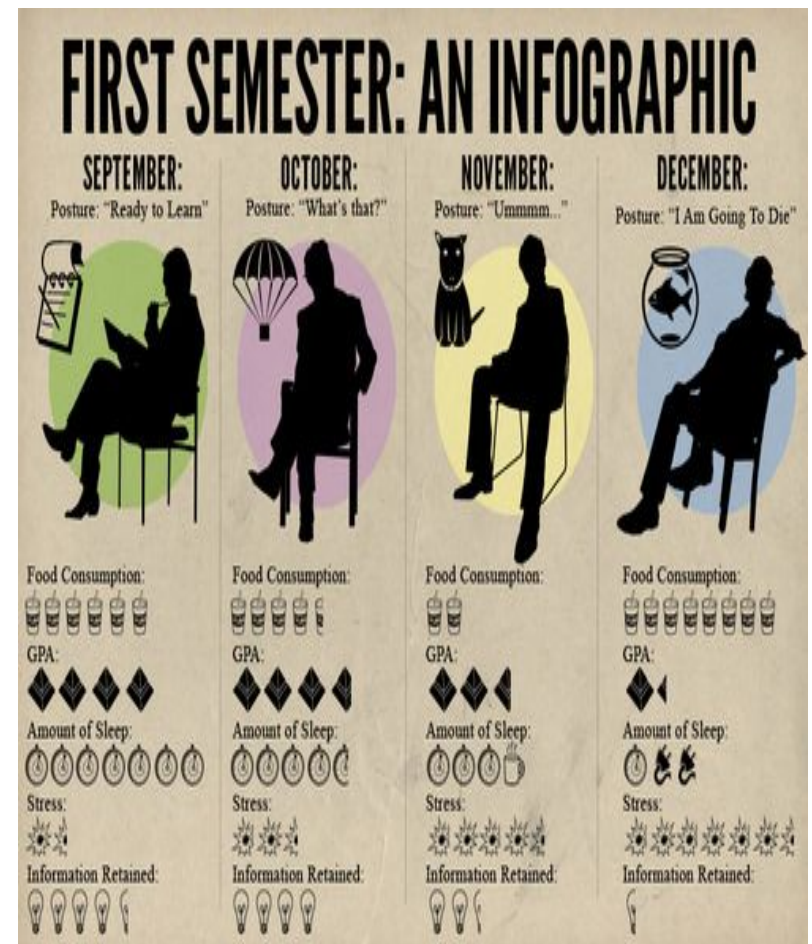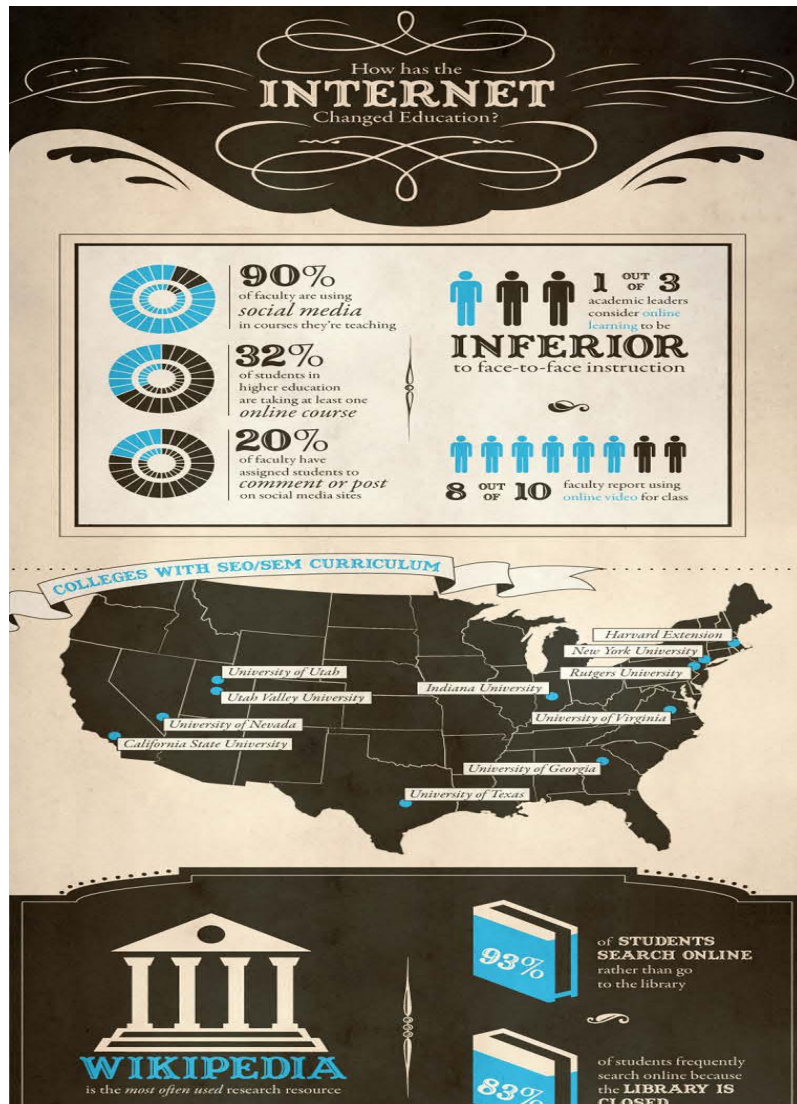
Examples from Higher Education:
Education

Just for Fun

Why Infographics Work

- Convey a lot of information in a small space
- Easy to digest
- Shareable (and trackable)
- Aesthetically interesting

Why You Should Give It a Try

- Challenge yourself to engage with your data in new and different ways

- Learn new skills

- Identify new insights

- Set yourself apart from your peers

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Getting Started: Plan Your Work

- **Identify your purpose**
  - What goals do you hope to achieve by visually communicating your data?
- **Identify and understand your audience**
  - Who are the infographics for? Parents? Students? Broader Community?
- **Identify your reporting objectives and outcomes**
  - What do you need to communicate?
  - How often, on what timeline?
  - What do you expect for your ROI?
  - How will you know you were effective?

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Getting Started: Get Inspired

Pinterest: Infographic
Twitter: #infographic

Blogs/Websites:
- coolinfographics.com
- dailyinfographic.com
- edtechmagazine.com/higher
- flowingdata.com
- good.is/infogrpahics
- chartporn.org
- infographicsshowcase.com
- pdviz.com/blog

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Getting Started: Data Synthesis

- Understand your data
- Start simple
  - Think about ways that you can take existing charts and graphs to the next level
  - Add additional layers to explore your story
  - Adhere to the analytical design principles
- Record and distill your thoughts
- Synthesize, synthesize, synthesize
- Create a concept map (paper and pencil)

Getting Started: The Right Tools

Software

    Excel, Google Analytics, Facebook Insights

    Pages (Mac)

    Photoshop

    InDesign/Adobe Illustrator

    Microsoft Publisher

Visualization tools:

    Campus Labs – Baseline (campuslabs.com)

    Chartle (chartle.net)

    Tableau (tableausoftware.com)

    Wordle (wordle.net)

    Visual.ly (visual.ly)

    The Noun Project (thenounproject.com)

    Open Clipart (openclipart.org)

Getting Started: Try It Out
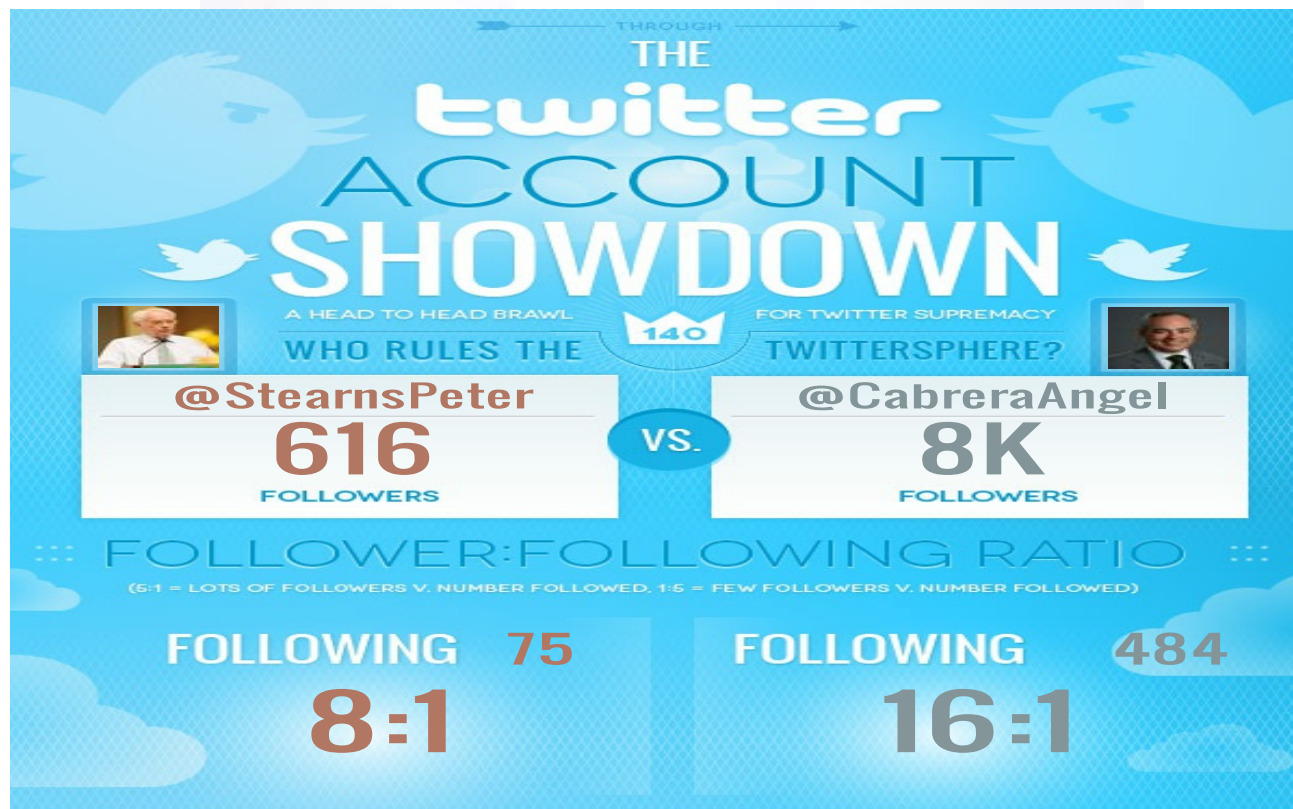
Additional Resources: Try a MOOC

- Knight Center – Introduction to Infographics and Data Visualization

Additional Resources: Further Reading

Edward Tufte (www.edwardtufte.com)
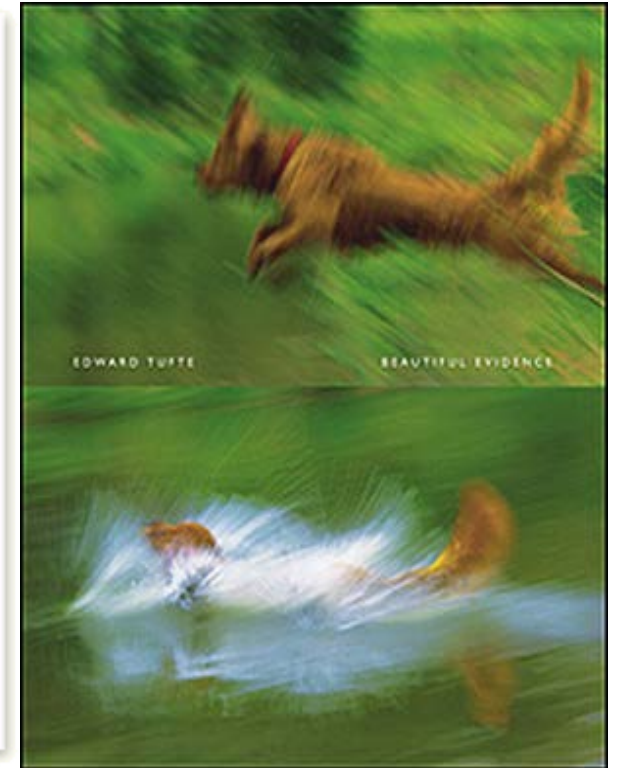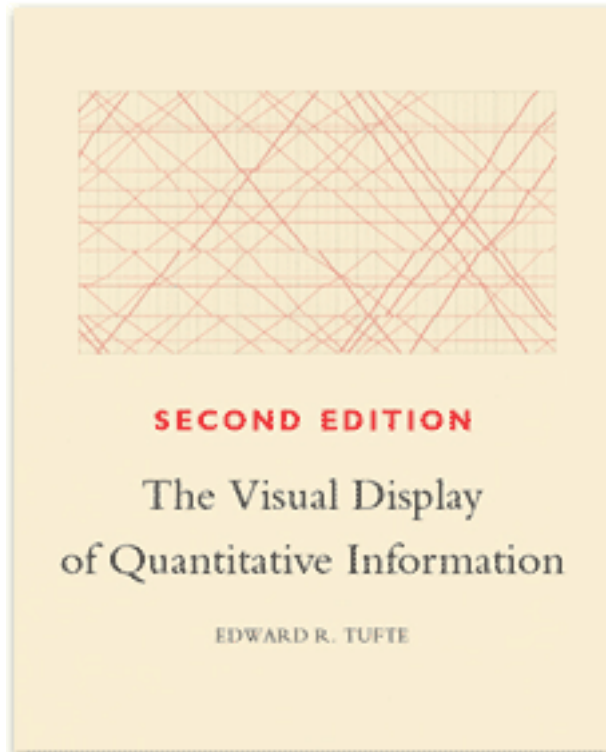
Additional Resources: Further Reading

Stephen Few (www.perceptualedge.com)
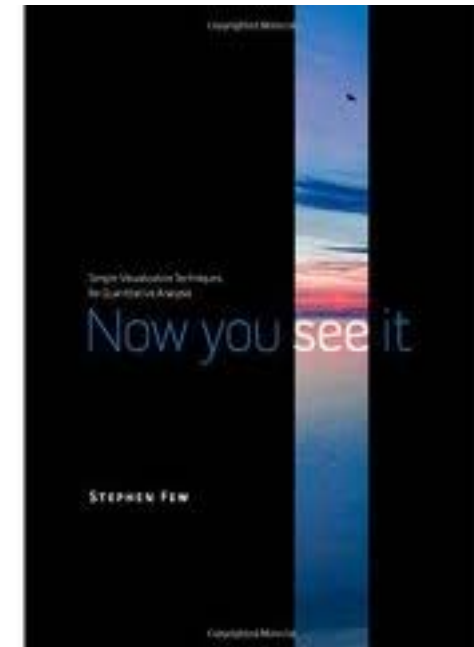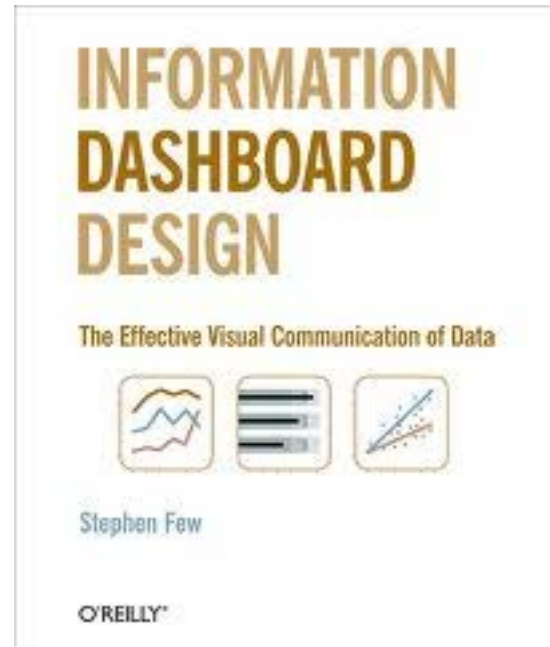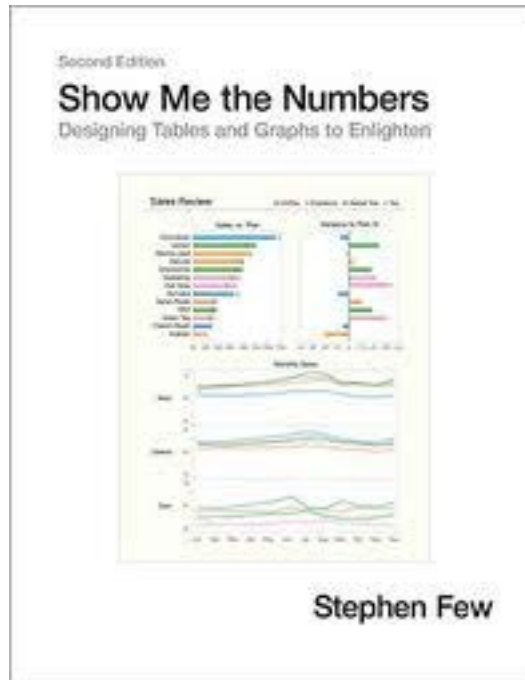
Additional Resources: Further Reading

(Note: Nice pictures but many visualizations lack necessary details)

David McCandless (www.davidmccandless.com)
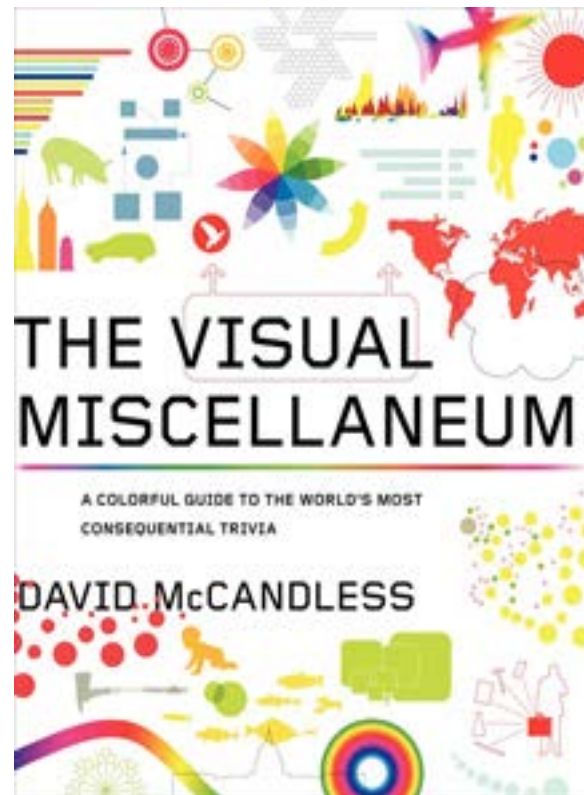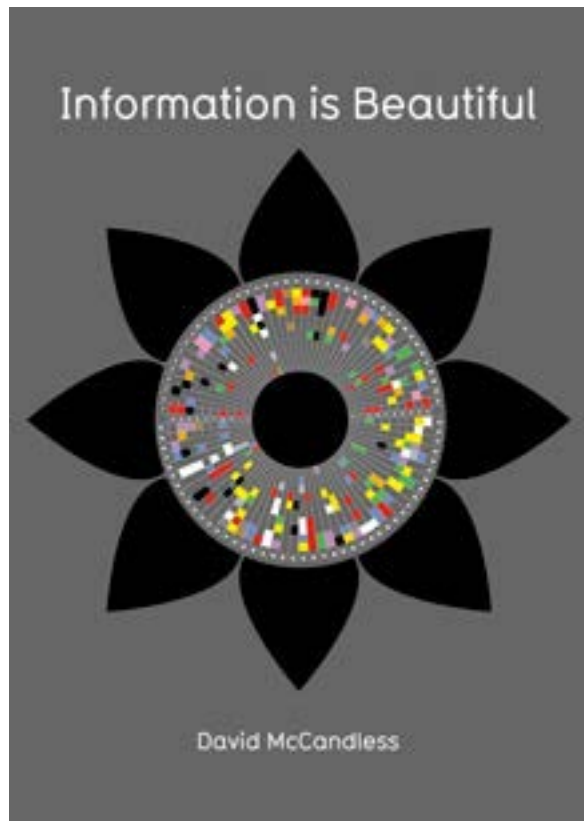
Additional Resources: Further Reading
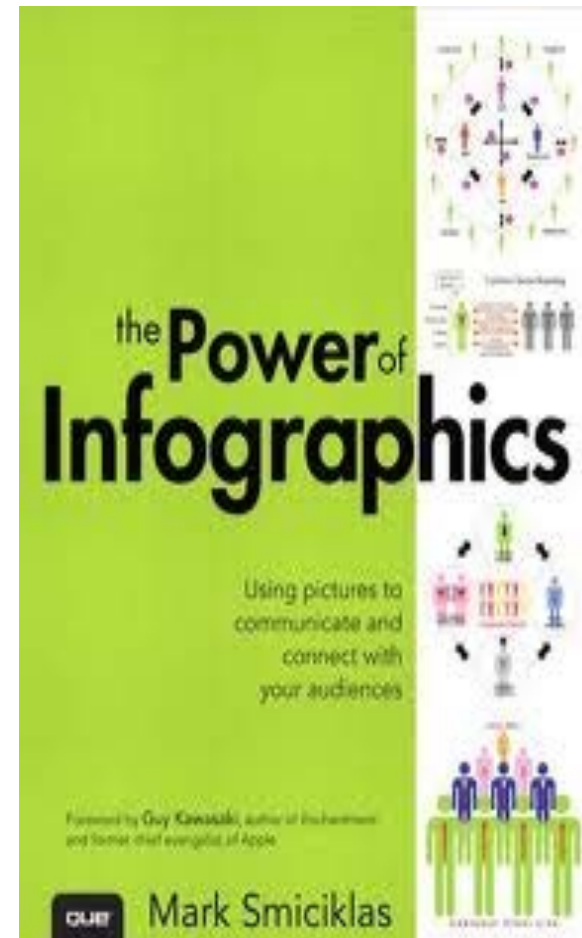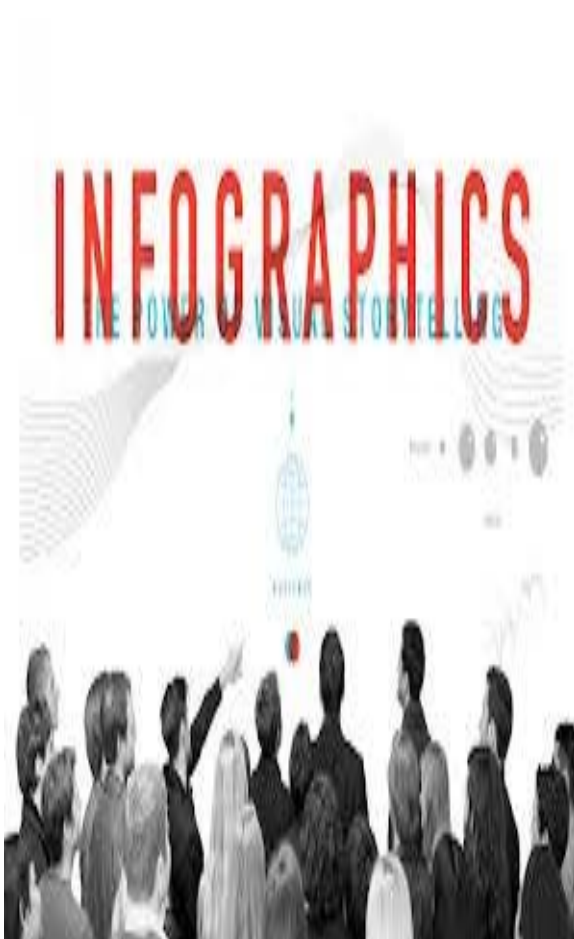
Want to learn more?

- We are thinking of creating a community of learners who are interested in developing knowledge/skills in this area. If you are interested, please contact:

  Ashley Sieman

  asieman@gmu.edu

  703-993-4081

References

Tufte, E.R. (2006). *Beautiful evidence.* Cheshire, CT: Graphics Press LLC.

Smiciklas, M. (2012). *The power of infographics: Using pictures to communicate and connect with your audience.* Indianapolis, IN: QUE.

Lankow, J., Ritchie, J., Crooks, R. (2012). *Infographics: The power of visual storytelling.* Hoboken, NJ: John Wiley & Sons, Inc.

Infographic Links

- Educated and Employed: http://www.edtechmagazine.com/higher/sites/edtechmagazine.com.higher/files/uploads/12.01.png

- Creativity and Education: http://media.dexigner.com/article/23057/Creativity_and_Education_Infographic.jpg

- Students and Technology: http://www.edtechmagazine.com/higher/article/2012/10/how-technology-powering-academic-success-infographic

- The Flipped Classroom: http://www.edtechmagazine.com/higher/article/2012/07/can-flipped-classroom-model-work-higher-education-infographic

- Gamification of Education: http://www.edtechmagazine.com/higher/article/2012/11/where-does-gamification-fit-higher-education-infographic

- Social Media Crisis Management: http://www.business2community.com/social-media/social-media-crisis-management-infographics-worth-your-attention-0315203

- Pathways in Nursing: http://nursinglicensemap.com/pathways-in-nursing-infographic/

- How Big Data is Personalizing the College Experience: http://www.edtechmagazine.com/higher/article/2012/09/how-big-data-personalizing-college-experience-infographic

- Battle for Bandwidth: http://www.onlinecolleges.net/2012/08/01/the-battle-for-bandwidth/

- Analytics in Higher Education: http://www.edtechmagazine.com/higher/article/2012/11/evolving-role-analytics-higher-education-infographic/

Infographic Links

- How Colleges are Using Social Media: http://www.edtechmagazine.com/higher/article/2012/10/how-schools-actually-use-social-media-infographic
- Social Media Smackdown: http://www.huffingtonpost.com/2012/06/08/infographic-college-students-twitter-use_n_1581344.html
- Online Education Revolution: http://www.edtechmagazine.com/higher/article/2012/08/online-education-revolution-infographic
- Profile of an Online College Student: http://www.edtechmagazine.com/higher/article/2012/12/closer-look-online-college-student-infographic
- Crime on Campus: http://www.infographs.org/2012/06/crime-on-campus-infographic/
- The United States of Student Debt: http://www.mint.com/blog/trends/infographic-the-united-states-of-student-debt-042012/
- How the Internet Changed Education: http://www.coolinfographics.com/blog/2012/5/7/how-has-internet-changed-education.html
- First Semester: http://iwastesomuchtime.com/on/?i=16588
- What You Wish You'd Known Before Your Job Interview: http://visual.ly/what-you-wish-youd-known-your-job-interview
- The True Cost of Skipping Class: http://www.studentscholarshipsearch.com/tips/cost-of-skipping-class.php
- Facing Mental Illness: http://msw.usc.edu/mswusc-blog/facing-mental-illness-infographic/
- Student Affairs Superheroes: http://sawomentalktech.com/blog/2012/02/07/infographic-why-sapros-are-really-superheroes-in-disguise-saheroes/