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Visualization of Library Databases

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Interactive Visualization of Bibliographic Information from Library Databases: A Digital Humanities Project

Dr. Xue-Ming Bao

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Interactive Visualization of Bibliographic Information from Library Databases: A Digital Humanities Project

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Outline

► Project Objective and Questions
► Literature Review
► Visualization Tools
► Visualization Examples
Project Objective and Questions

To explore the best ways of visualizing library databases to improve library instructions.

Questions:

- What does a library database include?
- How to answer this question in an engaging, interesting, and meaningful way?
Literature Review (1)

- Lack of student interest and engagement was an issue of student-related challenges,
- Lack of time allocated for lesson preparation or time for providing sessions themselves was an issue of instructor-related challenges.

Literature Review (2)

“The relationships among the frequently cited authors, references, journals and keywords can be explained visually.”

Visualizations of library data have been used to:

- Reveal relationships among subject areas for users
- Illuminate circulation patterns
- Suggest titles for weeding
- Analyze citations and map scholarly communications.

“Digital humanists have long argued that digital projects, such as databases, visualization, and digital scholarly editions, are rigorous and theoretical forms of humanities scholarship that require different methods of evaluation and dissemination.”

Visualization Tools

- Directory of data visualization tools sponsored by the Andrew W. Mellon Foundation  
  http://dirtdirectory.org/tadirah/visualization

- Microsoft Power BI  https://powerbi.microsoft.com/

- Tableau Public  https://public.tableau.com/s/gallery

- The R Project for Statistical Computing  
  https://www.r-project.org/
Power BI Visualizations
Bring up Power BI Desktop for a Demo

- Stacked bar chart, Stacked column chart, Clustered bar chart, Clustered column chart, 100% stacked bar chart, 100% stacked column chart, Line chart, Area chart, Stacked area chart, Line and stacked column chart, Line and clustered column chart, Waterfall chart, Scatter chart, Pie chart, Treemap, Map, Table, Matrix, Filled map, Funnel, Gauge, Multi-row chart, Card, Slicer, Donut chart, BrushChart, Histogram, LongTextViewer, SupperBubbles, TableHeatMap, TableSorter, TimeBrush, TimeLine, WordCloud, GlobeMap
Visualization Examples (1)

- Visualization Examples of Library Resources

  - A Quick Glance of Library Databases (Pie chart, Super Bubbles, and Table)

  - Keywords from SHU Theses and Dissertations (Word Cloud)

  - History Electronic Resources (Slicer, ChicletSlicer, and Table)
Visualization Examples (2)

- The Status of Dr. John C. H. Wu’s Works Collected by Worldwide Libraries

- Publishers of John C. H. Wu's Works

- Citations of *The Golden Age of Zen* (1967)

- John C. H. Wu’s Chinese Name (吴经熊) in Scholarly Article Titles

- John C. H. Wu’s Chinese Name (吴经熊) in References of Scholarly Articles
Conclusions

- The benefit and challenge of visualizing library’s bibliographic information:
  - Interactive visualizations allows a user to see deeper layer of the data by clicking on one field to view the change in another.
  - Interactive visualizations seem to be helpful in the study of a well-known author.
  - Experiments are needed to explore the best and meaningful ways of visualizing bibliographic data to make library instructions interesting.