Comprehension of Informetric Visualizations

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Dissertation Research Plan

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Problem Area

Information visualizations often attempt to distill (analyses of) highly complex data sets into representative, engaging, and easy-to-understand graphic forms.

How do we know what our audience will find easy to understand?

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Proposal

As visualizations become more widely used/distributed, audiences become more diverse and have more diverse skillsets and fluencies.

Proposed study will attempt both to identify the range of these fluencies and develop and to refine appropriate measures of graphic comprehension.

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Research Questions

- How does understanding vary across graphic types?
- How does understanding vary within graphics?
- What individual traits influence understanding?

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Operationalizations

Understanding: successful completion of typical tasks required of users (divided into three levels of map reading skills)

Individual traits: age, sex, educational background, spatial ability, intellectual style

Graphics: node-link diagrams, geospatial, and others TBD

Studies Planned

- Phase 1: Pilot survey (broad population; node-link and geospatial; testing for attribute, density and trend identification)
- Phase 2: Full survey instrument (student population; series of visualizations testing variety of skills; full complement of trait tests)