Dynamic Exploration of the Soul of the Community

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The Knightr Foundation sponsored a “Soul of the Community” project www.soulthecommunity.org, which surveyed almost 48000 individuals over 3 years and across 26 communities in the United States. Data on over 1250 questions on respondent demographics – net evaluation of their community were collected. This large amount of survey data is challenging to summarize and analyze in an efficient way. Additionally, communication of the analysis results and key findings poses a challenge. The use of dynamic inmemory computer software, specifically the JMP® software package (www.jmp.com), to explore the data, visualize the relationships, and communicates the results make these challenges easier to overcome. Dynamic filtering, response switching, and customized interactions provide key visual insight on relationships that are present, and effective compact visual summarization of the survey results will also be shown.

All of the results shown on this poster are static "snapshots" of the dynamic views available in JMP®. Ask a presenter to show you these views so you can see the usefulness of this approach.

So How Did We Get Started? Dynamic Graphic Exploration!

Dynamic exploration led to the question "Are Communities Heterogeneous?" A combination of exploratory tools and customizations were used to build a spatial visual filter. Note that geotientic filters (i.e., defined by location and/or attributes) were added to augment this data. This allowed for rapid filtering and further exploration to help answer that question.

We add Urban Group as a wrapping variable now shows that very high urbanicity group has slightly more variation among the counties. With just a few switches in variables, communities have low ratings for these areas. This leads to the next question of heterogeneity. Further exploration analysis relied on predictive modeling tools, such as neural nets, to find response for the heterogeneity in individual communities.

The Lexington, Kentucky community consists of a combination of medium urban and smaller rural areas, covering five separate counties. Zooming to this community, highlighting the counties and subsetting the 2010 year data quickly then allowed us to see that there is some level of heterogeneity for attachment in this community. This leads to the next question of "Are Communities Homogeneous?"

The Minneapolis/St Paul community consists of a combination of large urban, median urban, and smaller towns, covering thirteen separate counties. Zooming to this community, highlighting the counties and subsetting the 2008 year data quickly then allowed us to see that, by County. There were statistically significant differences between counties (using a Tukey-Kramer HSD procedure, α = 0.05) during that year, and we would conclude that as far as community passion, this community is significantly different by County. We conclude that there is some level of homogeneity for the rest of the community. To balance the rest of the question of "Are Communities Homogeneous?"

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