Which of the 4 maps to the right shows the geographic distribution of the map to the left?

1) To what extent are people able to interpret data and geography in a spatially ordered treemap (SOT) by performing complex graphical perception tasks?

2) Tasks

Objective 1
To investigate whether people are able to make sense of SOTs & to identify the kinds of inference tasks that are suitable for such a technique.

Objective 2
To investigate and identify what kind of support mechanisms & metaphors (visual indicators or morphing) are useful in supporting the process of spatial problem solving & decision making when using SOTs.

Objective 3
To investigate the effects of spatial ability; that is to examine how task performance and support mechanisms are modulated by spatial ability with respect to SOTs.

3) Hypotheses

HYPOTHESIS ONE: Statistical tasks
H₀: Choropleth (CHO) maps will perform better than SOT on statistical tasks;
H₁: SOT will perform better than CHO on statistical tasks.

HYPOTHESIS TWO: Geographical tasks
H₀: CHO maps will perform better than SOT on geographical tasks;
H₁: SOT will perform better than CHO on geographical tasks.

HYPOTHESIS THREE: Statistical Geographical tasks
H₀: CHO maps will perform better than SOT on statistical geographical tasks;
H₁: SOT will perform better than CHO on statistical geographical tasks.

HYPOTHESIS FOUR: Hierarchical tasks
H₀: CHO maps will perform better than SOT on hierarchical tasks;
H₁: SOT will perform better than CHO on hierarchical tasks.

HYPOTHESIS FIVE: Effects of spatial ability
H₀: Subjects with better scores in the spatial ability test will outperform subjects with poor scores in the spatial ability test in the perceptual tasks;
H₁: Spatial ability has no effect on perceptual tasks.

References


Objective 1
To what extent are people able to interpret data and geography in a spatially ordered treemap (SOT) by performing complex graphical perception tasks?

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To investigate and identify what kind of support mechanisms & metaphors (visual indicators or morphing) are useful in supporting the process of spatial problem solving & decision making when using SOTs.

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References


There are three geographic tasks: distribution, compare and locate (1). Where appropriate each task is further divided into statistical, geographical and statistical geographical tasks. We then use the concept of direct & inverse (1) to ensure the questions are not biased towards a single way of asking. Each of the tasks are further divided to test single level maps (Flat) and/or multiple level hierarchical (Hier) tasks.

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