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Individual Decision Making in Online Public-Participation Transportation Planning

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Individual decision making in online public-participation transportation planning
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Participation (based on Arnstein, 1969)

8  Citizen Control
7  Delegated Power
6  Partnership
5  Placation
4  Consultation
3  Informing
2  Therapy
1  Manipulation

(citizen power)
(tokenism)
(nonparticipation)

Center for Spatial Analysis and Research (CSAR)
Use of Technology

Process  Technology  Outcomes

Satisfaction

Performance
Illustration
Task-Technology Fit

GIS Technology
Geographical Tasks
Spatial Abilities
Intrinsic Incentive
Performance
Goal Commitment
Goal Level
System Utilization

(based on Jarupathirun and Zahedi, 2007)
During the next 25 years the central Puget Sound population is expected to grow by 1.2 million people.

How will this growth impact our already congested transportation system? What improvements are necessary to keep our region moving? Who gets to have a voice in this decision?
LIT Steps

1. Concerns
2. Factors
3. Individual Package
4. Group Package
5. Report

Center for Spatial Analysis and Research (CSAR)
Challenge

Groups of users with similar user interaction?

user interaction

individual characteristics

Socio-demographics

Cognitive Style Indicator*

Travel behavior

Computer/Internet proficiency

*(Cools and van den Broeck, 2007)
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Capturing Activities

deliberation

analysis

information gathering

total duration

Center for Spatial Analysis and Research (CSAR)
HCI Analysis Overview

Server Logs → Extraction → User Activities → Clustering → Groups of similar interaction → Regression → Group Predictors

Analysis Iteration
Clustering Algorithms

- Multiple sequence alignment analysis*
- Hierarchical cluster analysis

*(Abbott, 1990; Shoval and Isaacson, 2007; Fabrikant et al., 2008)
Clustering Summary

- HCA: Usable classification for total time
- MSA: Reliability concerns
- Analytical synergies MSA ↔ HCA
Logistic Regression Summary

Groups with similar overall interaction duration

Socio-demographics

Cognitive Style Indicator*

Travel behavior

Online transportation discussions

*(Cools and van den Broeck, 2007)
What about Individual Choices?


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Location Analysis

- 60% Outside buffers
- 40% Walking distance
- 17% Bicycling distance
- 23% Driving distance

Center for Spatial Analysis and Research (CSAR)
Cost Analysis

Me

$159
$8,731

VS

You

Median
Sum

$378
$16,348
Location/Cost Analysis Summary

- Self-centrism prevailing
- Need for moderation
- Feed observed patterns into process
- Complexity! Performance?
Conclusions

• System, process, outcomes
• Capturing, evaluating HCI in web-based DSS (LIT as case study)
• Analysis of behavior; profiling of the ‘public’
• PPGIS, spatial equity; greater good?
Conclusions

Access

Representation

Attrition
Take-home Message

• Public :: individuals
• Participation = f(opportunities for participation)
• Towards an individual-centered approach
Thank you!

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