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)

 Rankings:

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

Terms:
- Citizen power
- Tokenism
- Nonparticipation
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

Task-Technology Fit

(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?
Puget Sound

Map of Puget Sound with cities such as Everett, Snohomish, and King highlighted.
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

Analysis Iteration → Group Predictors

Center for Spatial Analysis and Research (CSAR)
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
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?
Location Analysis

- Outside buffers: 40%
- Walking distance: 17%
- Bicycling distance: 22%
- Driving distance: 8%

Center for Spatial Analysis and Research (CSAR)
Cost Analysis

Me

$159
$8,731

Median
Sum

VS

You

$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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