Ecology of Commuting
Research on Alternative Ways of Commuting

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Issues

• Solo driving: According to a survey conducted in 2000, %76 of American professionals drive to work by themselves.

• Weakness of incentives for collective commuting: personal and social-cultural factors, social infrastructure.

• Weaknesses of public policies and urban planning (urban sprawl)
Literature

Norms, values, social infrastructure environmental transitions

Behaviors attitudes perceived control

Research dimensions

Habits, situation, social interaction social role transitions

Stress models City infrastructure Urban planning
Propositions

➡ Proposition 1: Convenience, cost, and personal preference are the defining factors in people’s commuting choice.

- People don’t carpool because of the convenience, and personal preference factors.
- They tend to carpool because of the cost factors.

➡ Proposition 2: In order to decrease commuting stress, people construct routines and rituals. Routines provide stability, whereas rituals help people ease the transition (in between roles).
Methodology

- Semi-structured interviews, design research
- Capturing the whole experience, before, during, after commuting
- Participants from CMU and local university campus communities
  30 participants
  14 bus-riders
  7 solo drivers
  9 carpoolers
Interview Protocol

• Preparation (Planning, strategies) How do you coordinate your commute? Do you use technology to help you coordinate, if so what kind (cell phones, online calendars, online carpool service, etc.)? Is your work schedule fairly consistent or do you need to sometimes come in early?

• During (Routine, Rituals) Do you have a regular pattern of commuting? Do you have any personal rituals while commuting, like drink coffee, and listen to music? Do you talk to colleagues or your spouse during commuting?

• After-commute (Narratives) Tell me about a time when you have a great (joyful, graceful) commuting experience. Tell me about a time when you have a bad experience. (Impromptu questions to let participant explain more)
Highlights

• One participant everyday drives 42 miles each way. One family carpooler needs to double their commuting 2 days a week (because of husband’s school)

• 7 out of 9 carpoolers are family carpoolers.

• Participants have a wide range of routines during commutes: sleeping, observing other passengers, chasing other drivers, talking to people on phone, chatting with their familiar strangers, listening to pod-cast, praying to Krishna god, learning French, observing deers/wild life.

• They hate waiting, waiting in the traffic jam, waiting other people if they re carpooling, waiting bus to come..

• Even family carpoolers have complicated schedules. Almost all participants have studied alternatives beforehand, they have mapped out strategies for breakdowns.
Participant reflections (prior to: planning)

• “The only technology i use is google calendar. but thats just because i work for a company's development lab, and I have to go to different schools in the area. I put everything in my google calendar, and google calendar maps stuff for me. it google maps it. so like when you put in destination, or a location of where something is, if i just put in the address of the school it'll ask me if i want to map. and it'll save my map in the tasks i created in google calendar. so when i print out my agenda, my maps print out too.”

• “There is an unwritten rule, I arrive to the park&ride slot around 6:25 am. If one waits more than 5 minutes, he calls the other one, if it is 10 minutes he goes by himself, 6:35 is sharp. We are kinda punctual, If I wait a long time, it doesn’t worth carpooling.”

• “In the mornings my TV is open, I check weather and traffic from the news, and when I am on the road close to I-376, I check tail-lights, if I see them, I change my route..”
Participant reflections (during: routine, ritual)

• “I listen to radio, and I do scenic commutes on the way, especially in Fall or Spring, check ground hogs, turkey or deer.”

• “..I use chanting beads, (showing her beads), it helps me being connected to God (Khrisna), and also being aware of myself..”

• “..We occasionally stop at Panera, and get croissant and coffee..”

• “..On the way to work, I check my Facebook, Myspace, and emails, on the way back home I generally sleep..”

• “I have an I-pod, so I listen to pod-casts, American life and public radio shows, and learning french...it is one of the few times you can be alone with yourself”
Participant reflections (after: narratives)

• “Riding a bus can be peaceful. I am already really happy to commute when i'm riding a bus. because on the bus i can really unwind, or prepare for the day on the bus. if i have a seat. if i don't have a seat then its not a good day.

• “...Anytime there is a breakdown in the road, thats a bad experience. since I drive at I-94, that's becoming more and more frequent occurrence. sitting in traffic in the summertime. cause i drive a 5 speed, so the clutch overheats, and it makes a really scary drive, because I'm scared not to be able to shift gears. i guess these are just the really worst experiences for me. i don't really mind being in my car, i like to drive. its like the bus ride that helps me calm my head. but sitting in traffic i think its like the worst thing..”
Findings

• Convenience stands out as the most important factor in people’s commuting choice. Convenience means flexibility, route match, sharing same household, sharing same working environment, parking space, using HOV lane. Flexibility is the champion among other categories.

• Cost stands out as the second important factor, including time, gas, car maintenance, parking and buss pass categories. For those who prioritize flexibility cost is less important. For the solo drivers time is also a cost factor.

• Personal Preference stands out the third factor. Extroverted people tend to choose public transportation or carpool more than solo driving. However, we don’t have a clear cue if introverts choose solo driving compared to the other modes.
Discussion

• Coordination/logistics is not the real motive for people to change their commuting behaviors. Any design attempt on commuting might better focus on the situations, habits and social interactions, which are the facilitators of behavioral change.

• **Flexible systems:** People’s schedules are complex, even carpoolers sometimes need public transportation or have to drive their own cars. Designing systems to address the whole commuting experience is ambitious. Designers instead should focus on flexible systems such as casual carpooling.
Discussion

• Commuting is not always a troublesome process; it can be a pleasant experience. Our work shows that people construct routines of reading, listening, and conversation to make use of their commuting time, and compose rituals out of those routines to give meaning to their everyday lives. The narratives also illustrate that people use the commuting time as a “me-time” to relax and switch in-between their roles, and as “socializing-time” for small talk and conversations.

• Narratives also tell us the other side of the coin, generating bad experiences. Commuting has many different stake-holders, including individuals, logistics, and organizations. Possibility of a strike for the public transportation in city of Pittsburgh and the dramatic increase of the gas prices were the two strong variables of our interviewing setting. In order to find a preferred state that is applicable, there is a need to consider all the stake-holders, not only the individuals.
Scenarios, Line-up

Monica is an outdoors person, enjoys going to different kinds of events.

She is most of the times frustrated by the traffic and parking in those kinds of events.

She uses LINEUP to find riding groups who are going to the same event, setting proximity location.

She walks to a nearby bus-stop, 5 minutes before setting, she gets a message from the ride-friend.

Ride-car approaches, she identifies the car from the badge in front, they enjoy lineup and tonight’s event.
Questions

Thanks!

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