Pace Transportation System

Institute of Design IIT | Ipro ID 582 Communication Design Workshop

1. Process
2. Analysis
3. Synthesis
4. What's Next

Process

Data Collection

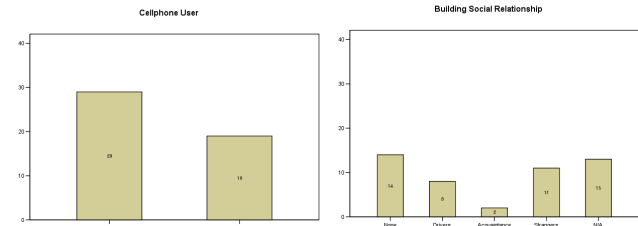Analysis

A. **Passengers & Drivers Interviews**

B. **Secondary Research:**

- Survey of Riders (2004)
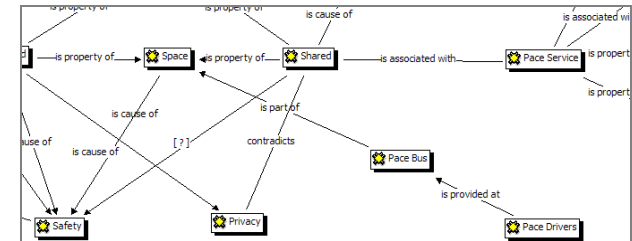- Focus Group Final Report(2004)
- Customer Satisfaction Index (2004)

A. Coding Process

B. Statistical Interpretation

C. Causal Relation Diagram

D. Concept Mapping

Observation → Interview questionnaire → Conducted interviews → Transcribed interviews → Coded interviews

Passengers

Drivers

Analysis
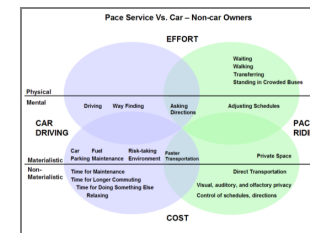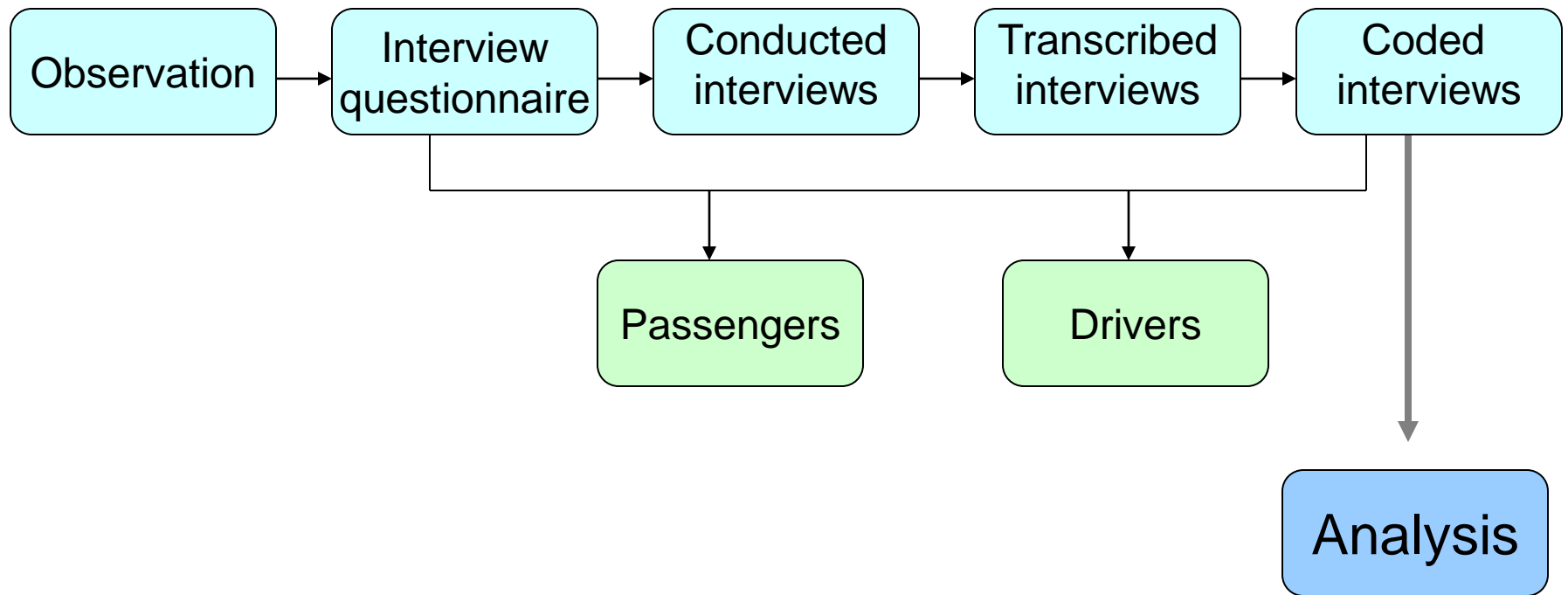
A. Passengers Interviews (Feb 07 -21, 2 weeks)

● 48 interviews on route 422 and 213
● 24 Open-ended questions

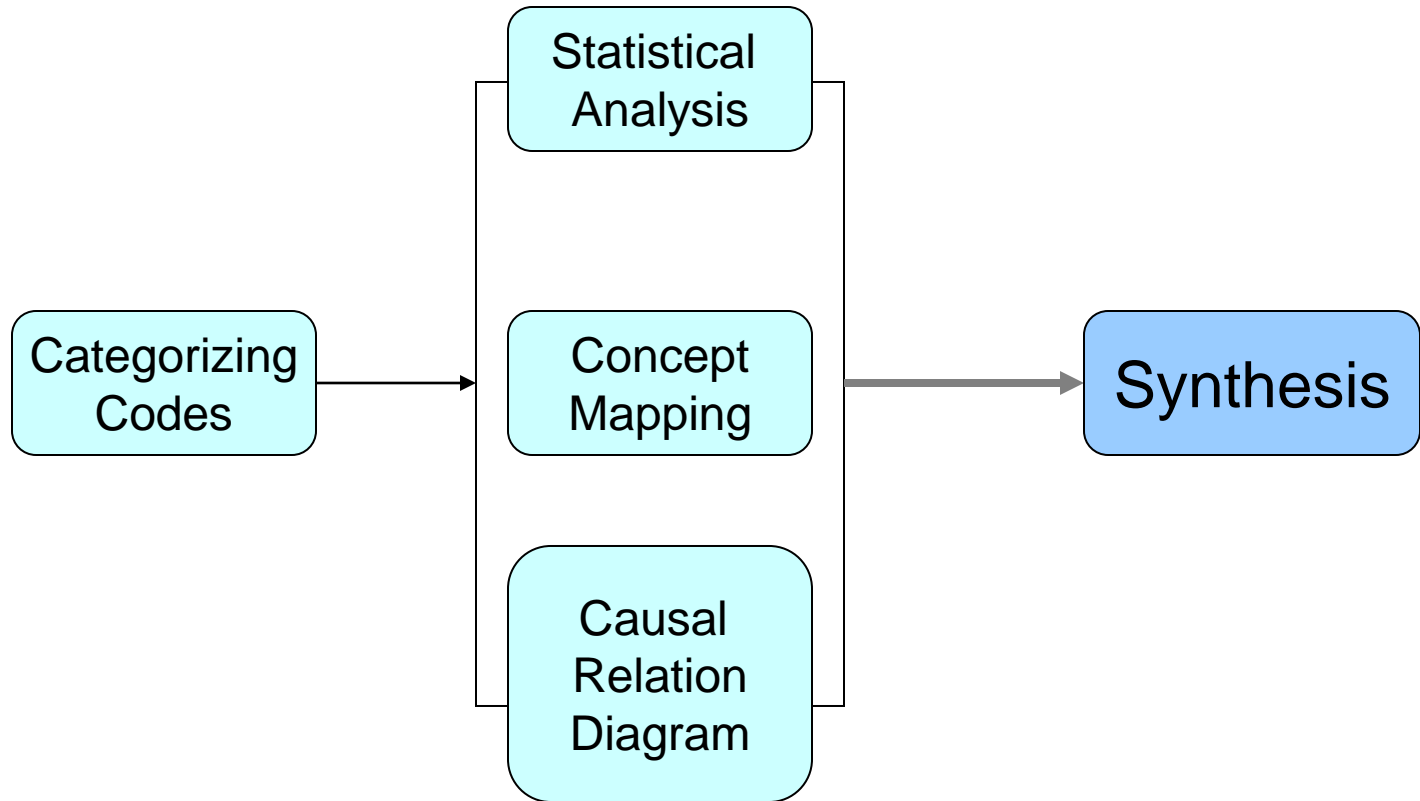|	
Transportation Choice & Opinions on Pace service	1. How many times do you ride Pace each day? 2. Why do you currently ride Pace? 4. When do you leave to/from work usually? Does this time change? 5. Do you have a Driver's License / vehicle? 7. What's good and bad about using car? 8. What's good and bad about the experience of riding Pace? 9. Which means of transportation do you use most often? 10. Which would you prefer to use most often? Why? 21. What could Pace do to make your ride more pleasurable?
Information Search & Website Use	13. Do you carry a cell phone? Do you plan on getting one in the near future? 14. Do you use the internet? (Skip to question 17 if they say NO) 15. Do you use the Pace website? What information do you look for on the website? 16. Do you go online before catching the Pace? 17. Have you heard of the WebWatch service? 20. If you could choose a place to get the Pace time table, where would you prefer to get it? ☐ Pace website ☐ Bus stop (Shelter) ☐ On the bus ☐Other_____
Extras	19. How can we make Pace more visible to our riders? 22. Have you built any social relationships from riding Pace? If so, who and how?

B. Drivers Interviews (Mar 10-24, 2 weeks)

● 24 Open-ended questions

Pace service	•	What would you like to improve on the route you currently drive?
	•	Compared to other routes you've driven (if applicable) which was the best one and why?
	•	Do you usually follow the route precisely (any detours or personal stops)?
	•	How do you handle the situation when you are delayed?
	•	Do you think Pace buses and stops are visible enough to attract more customers?
Passengers	•	What passengers do on the bus?
	•	What do passengers complain about?
	•	What do passengers compliment about?
	•	What kind of questions do passengers often have to ask you about?
	•	Do the passengers ever seem to feel unsafe? When? Who's usually riding at that time?
	•	How long is an average bus ride for a passenger?
	•	Do you think the current service is satisfying to the passengers? Why or why not?
	•	Do you think the current time schedule is satisfying to the passengers?
	•	How would having the bus schedule posted help or not help you?
	•	How do you handle an upset passenger?
	•	How often do people "flag down" your bus? Do you like this?
	•	Does the Flagging Down system create confusion amongst the riders? If yes, then in what ways?
	•	Do riders usually eat or drink on their ride?
Service Environment	•	What kind of changes have you noticed on your route? (Economy, Population, Riders)
	•	How many people are on your route at its busiest time?
	•	When and where is the bus usually empty?
	•	Does ridership change depending on day of week or seasonally? Why?

- Grounded Theory: a methodological approach to generate a theory - concepts & properties - from a corpus of textual data

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Example #3: A concept coded with a property and its dimensions

(Use of Pace Service: Frequency – Never | Rarely | Often | Frequently)
      Concept   Property   Dimensions of the property

[Reason for transportation choice]

1. How many times (Use of Pace Service: Frequency – Never | Rarely | Often | Frequently) do you ride Pace each day?

      About 4.

-Where do you take it to? (Mobility) (Destination) (Pace Service: Coverage) (Pace Riding: Range – Near | Middle | Distant)

      All kinds of places, I go to Old Orchard, I go upto Highland Park, I go to Glenco, Brick Court, Glenview, Evanston, I go to every place a Pace goes.

Pace Transportation System
Analysis

Quantifiable Data

Qualitative Data
(Reasons, Concepts, Suggestions)
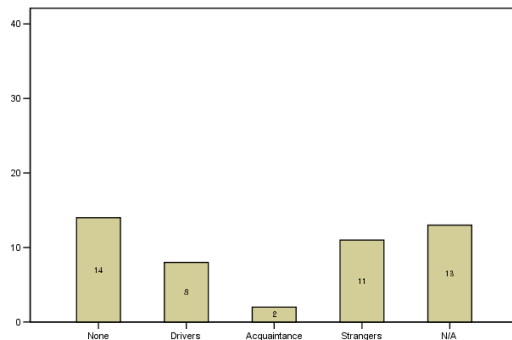
Bar Graphs
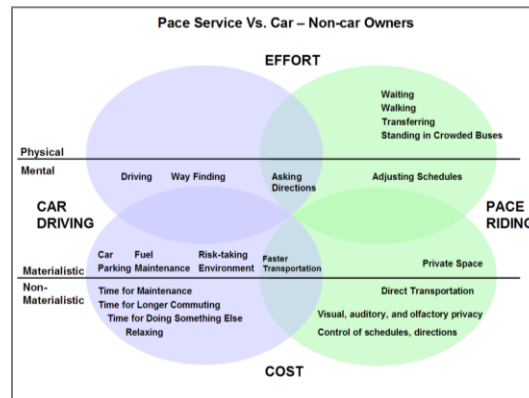
Concept Mapping

Causal Relation Diagram

Pace Transportation System
Analysis
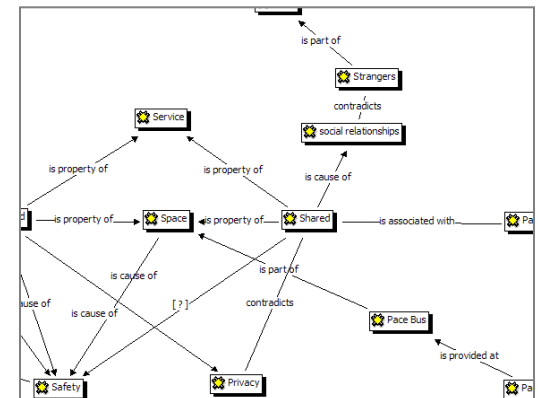
- About half of them licensed
- A significant portion of non-drivers
- Frequent user of public transportation, half of whom preferred car
- Mostly internet users, but only half of whom are Pace website users
- More than half of whom are cell phone users
- Preferred to get time table on the bus / WebWatch on cell phone

Pace Transportation System
Analysis
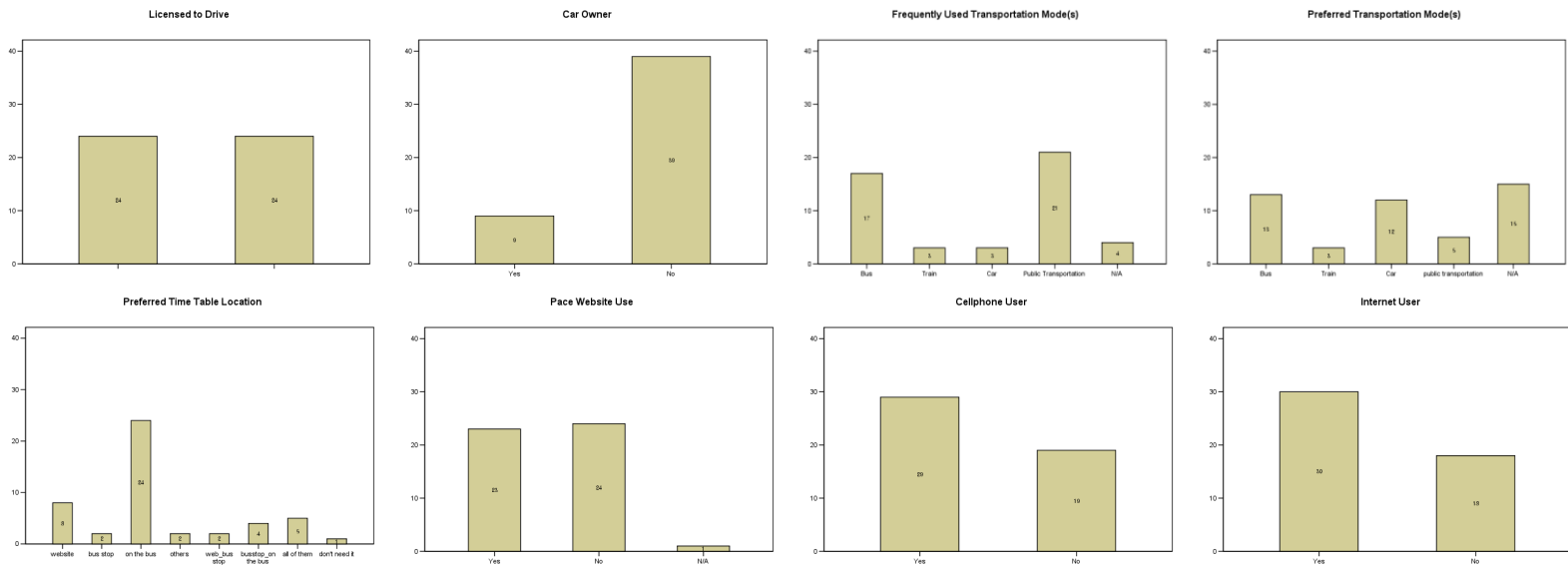
- Concepts & properties connected in causal relations
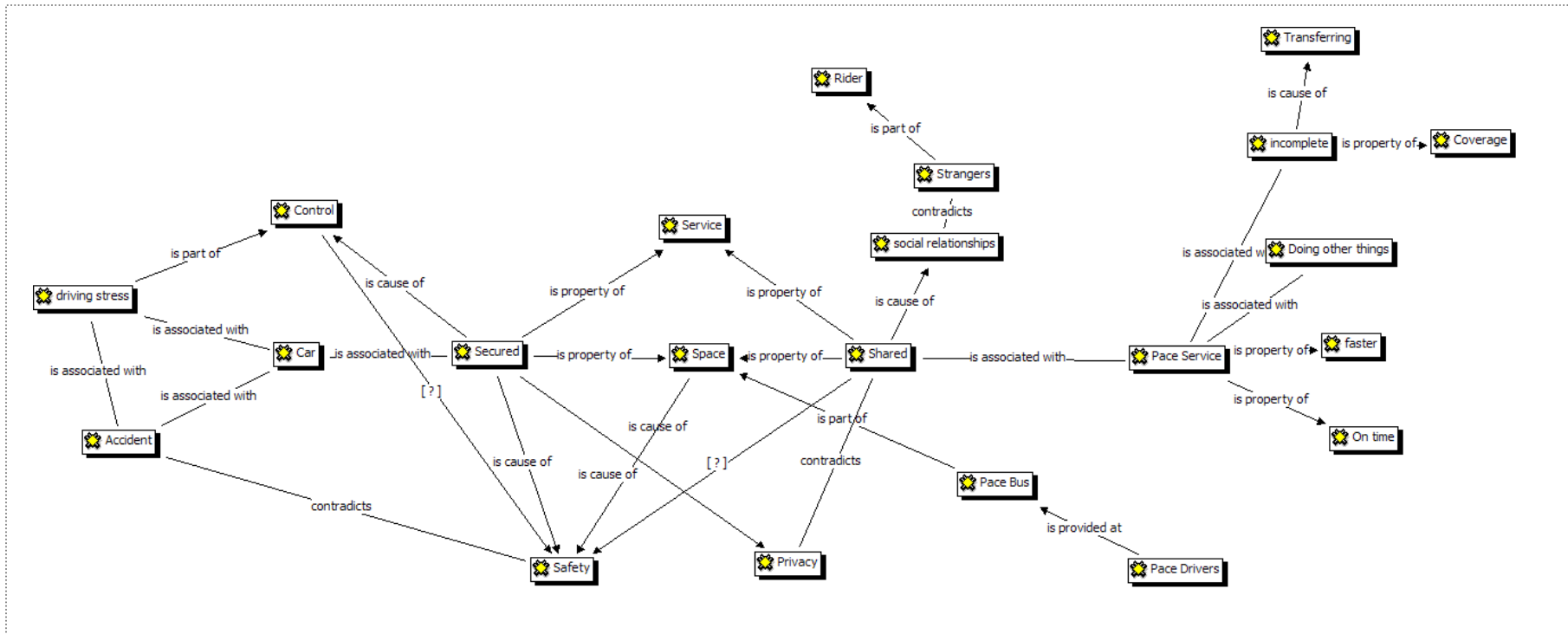
21. What could Pace do to make your ride more pleasura

Stay in business, and don't eliminate any routes.

Sundays, from Old Orchard, from Wilmette, like they us

the new area, The Glens, in Glenview, I think there's a n

SERVICE (13)

FLEET (8)

Dream door to door delivery

Frequency increase

Maintenance cleanliness

Routes maintain add weekends

Bus Size relative to time & route

Age old-new ok

Reliability night schedule

Seats hand holds

TV Bus like-dislike

Schedule present

Activities TV read sleep music

DRIVERS (8)

Drive safely

Schedule keep

Technical

Social

Enforce no eat/drink

PASS

Riding

Waiti

Aid disabled

Schedule

Attitude friendly/not

Shelter

Pleasure Responses

Accident investigation

Pace Transportation System
Analysis

EFFORT

Physical		**Waiting** **Walking** **Transferring**
	Way finding	**Standing in crowded buses**
Mental	**Driving**	**Adjusting schedules**

CAR-DRIVING

Pace

	Car	
	Parking **Maintenance**	
Materialistic	**Fuel** **Risk-taking**	**(-) Private space**
Non-materialistic	**Time for maintenance** **Longer commuting time** **(-) Environment *** **(-) Relaxing** **(-) Exercise** **(-) Time for other activities**	**Faster Transportation**	**(-) Direct transportation** **(-) Visual, auditory and olfactory privacy** **(-) Control of schedules, directions** **(-) Driving fun**

COST

* Items with (-) sign are the opportunity costs, for example, car drivers lose the opportunity to relax.

Pace Transportation System
Analysis

A. Interpretation

- Trade-offs: control, privacy | lower cost, responsibility

- Car represents power, control, responsibility

- Pace core competency:

Provide those who are <u>unable to drive</u> transportation service with <u>low cost</u> / <u>speedy & reliable mobility</u> / <u>good connectivity</u>

B. Design Insights

For those unable to drive	Low cost	Speedy & reliable mobility	Good connectivity
• the elderly & disables - helping drivers - ramp or smaller steps - porter for their shopping • the drunk - connecting drinking places	- avoid fare increase - money-saving opportunities for long-term customers: lottery with Pace monthly pass	- faster transportation for some destinations - may not be a faster transportation, but provides more productive time in better mood - consistent travel time at any time of the day	- live information for all transportation connections on buses

Pace Transportation System
Analysis

SERVICE (13)

FLEET (8)

Dream:
door to door
delivery

Frequency:
increase

Routes:
maintain
add
weekends

Bus Size:
relative to
time &
route

Maintenance:
cleanliness

Age:
old-new ok

Reliability:
night schedule

Seats:
hand holds

TV Bus:
like - dislike

Technical

Drive:
safely

Schedule:
keep

Schedule:
present

Activities:
TV
read
sleep
music

- -

Social

Enforce:
no eat/drink

Riding

Attitude:
friendly/not

- -

Aid:
disabled

Shelter

Schedule

Waiting

DRIVERS (8)

PASSENGERS(6)

Accident investigation

A. Interpretation

- On-the-road activities need balancing
- Sense of <u>control</u>, <u>privacy</u>, <u>protection</u>, and <u>convenience</u>

B. Design Insights

Sense of control	Sense of privacy	Sense of protection	Convenience
- flagging - door to door - call buses to pick up - customization of services (volume control, speakers @ chairs, massage chair with on/off switch)	- vending machine for food that's not distracting - organized news papers - restroom - family	- shelters: managed by business associates (coffee, newsstand, …) - shelter design by art students	- ticket vending machine on the bus

Pace Transportation System
Analysis

ADVERTISING

ROUTE IDENTIFICATION

INFORMATION

General
Awareness
TV Ads

Bus Stop
Signs
Flagging

Pace Plans/Proposals
Multimedia
(paper, online)

No TV on Bus

Brand
Service Scope

Maps
Connections
Schedules

Public

**Private/
Custom**

Detailed Real-time

Pot Holes
Road Bumps

Real-time Bus Info

Weather-barrier
Seats

Pace Transportation System
Analysis

Internet   **Pace Website**

Schedule
Map
Route/Location
Job
Used: Frequently - Infrequently

Accesible

High to Moderate Use

USE (12)   **USE (13)**
- -
DON'T (4)   **DON'T (4)**

Not Accesible

No Use

High Accessibility

Internet   **HAVE (27)**
- -
                                DON'T (10)

Too costly

Cell
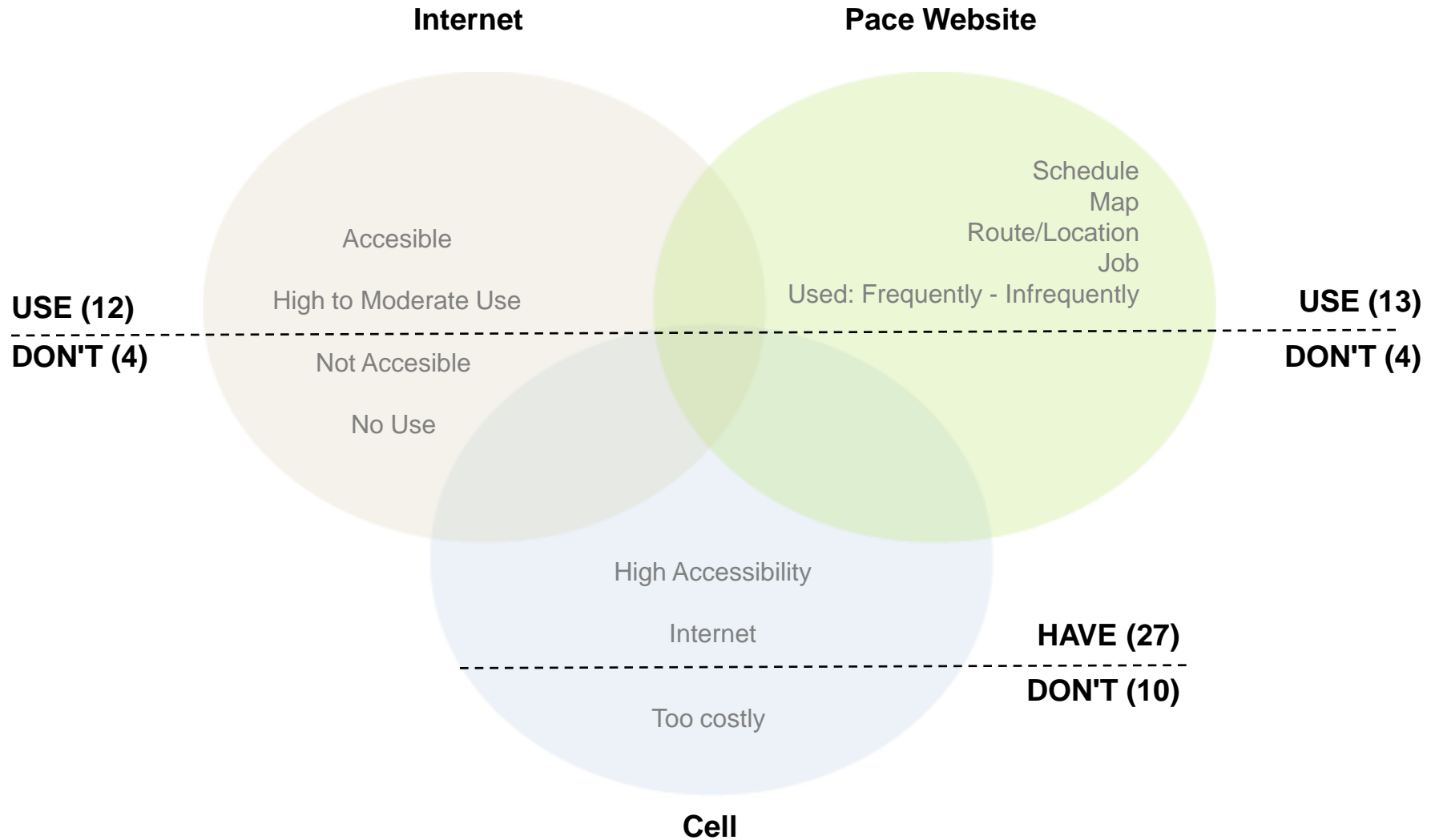
A. Interpretation

- Accessible & immediate information for 'when & where' to ride
- Media & location choices for information
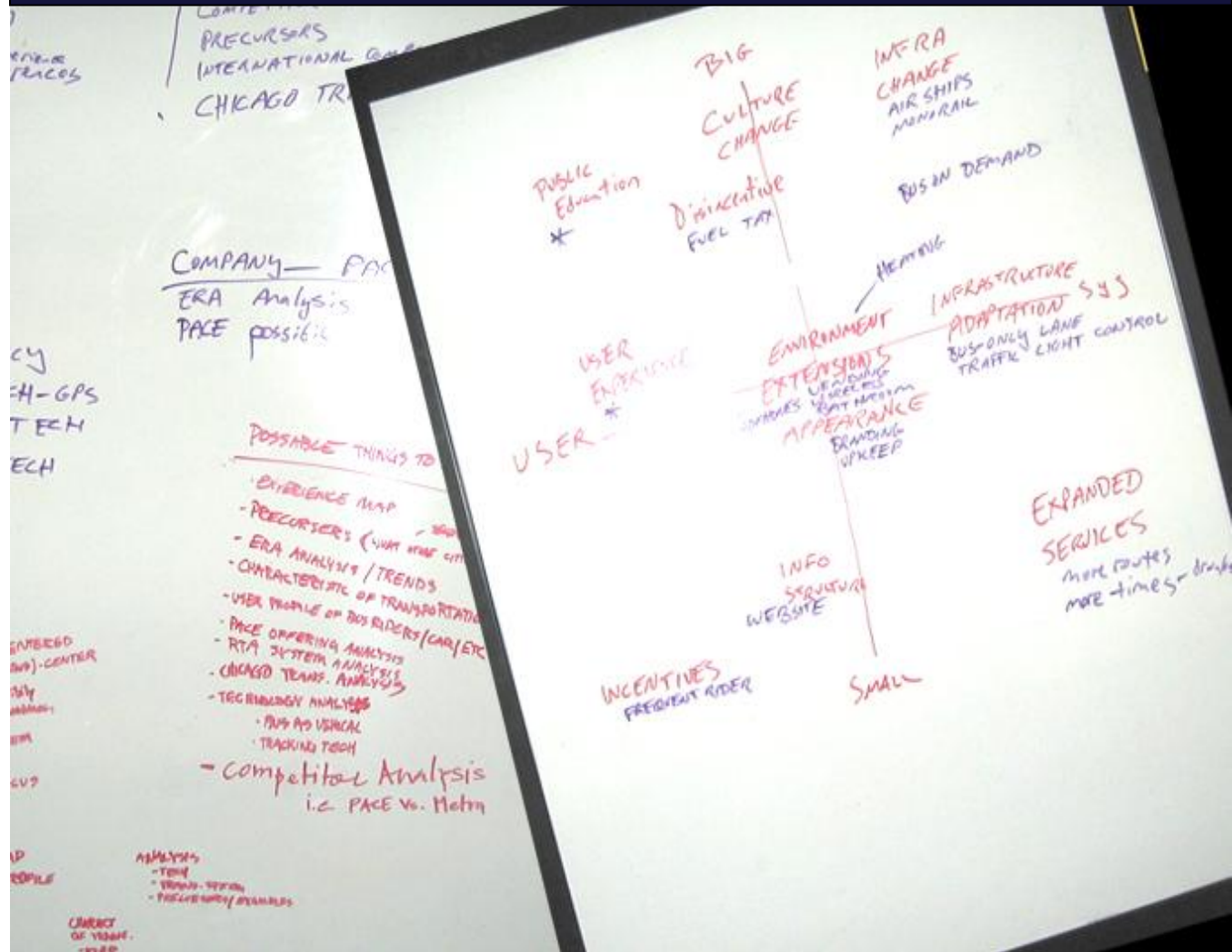
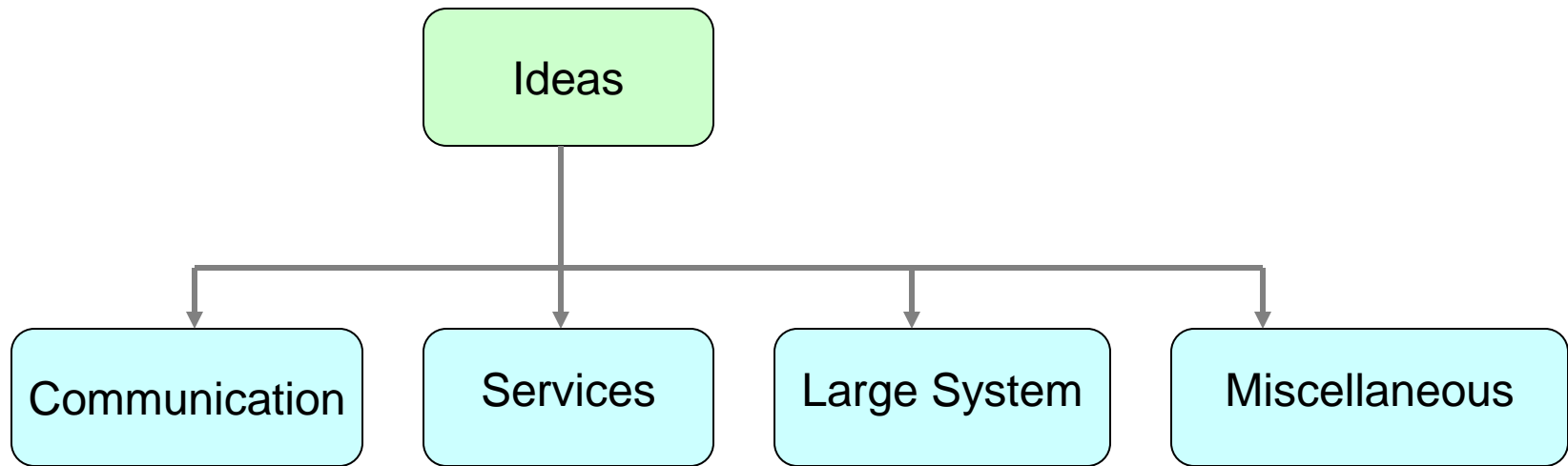## B. Design Insights

Immediate & convergent information

- InfoCenter of the whole system on the bus
- Info call on the bus
(have button to speak with operator to ask info)

+ more ideas…

Pace Transportation System
Analysis

- Drivers interviews
- Synthesis: research – design idea matching up

	Design Ideas		Quotations from interviews
9	SMART CARD + TABLET (Basu)	internet use	. Do you use the Internet? (Skip to question 17 if they say NO) Um, occasionally, if I'm ah, looking for like >movie< times, or, uh, uh, look|r
	SMART CARD + TABLET (Basu)	tv	. How can we make Pace more visible to our riders? Ugh..maybe have more routes around…and internet is good, **>tv<**.(f_422_g . Do you access in the new buses you have >TV< and all. I have seen it, I don't even pay attention to the TV and all.(f_213_codednter . What could Pace do to make your ride more pleasurable? Nothing. I don't really like the small new buses though the ones with the >T . How about the inside of the bus? I like the ones with the >TV< and the cu . So, it's schedule issues. How about the inside of the bus? Do you prefer t No, those busses are too small for seven o'clock. This one older is fine. Bu . They should take out the **television sets**. … They are useless....They dist Somebody is… I don't even know what they're selling. I hate them. I don't l . What could Pace do to make your ride more pleasurable? Turn of **Tv's**; they play only commercials. The **>noise<** is annoying, espe

Synthesis

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                    ┌─────────────┐
                    │    Ideas    │
                    └──────┬──────┘
       ┌───────────────────┼───────────────────┐
       │           │               │           │
┌──────────────┐ ┌──────────┐ ┌──────────────┐ ┌──────────────┐
│Communication │ │ Services │ │ Large System │ │Miscellaneous │
└──────────────┘ └──────────┘ └──────────────┘ └──────────────┘
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International

Use icons and multiple languages in signage, brochures, and other materials to reflect the linguistic diversity of PACE riders

Advertising

•Explicitly state acceptance of CTA cards

•More robust but silent television commercials

•Ads on Google for Pace

•Ads on Pace for Google

Numbers

Reduce confusion by using distinct and descriptive route names (213a and 213b instead of 213 and 213; 422 Lake instead of 422)

Redesign schedules

More intuitive design and formatting of paper and online schedules

Ticker tape display system

Real time arrival and departure information at all bus stops and CTA stations

Brand Communication

Promote Pace as a

•People-friendly transportation system

•Environmentally friendly system

Friendly Endorsements

Endorsements from current Pace riders displayed in various locations

Publicizing Interests

Advertising routes people can take to fairs, concerts and other local destinations of interest

Rider Feedback

On-the-bus drop boxes where riders can deposit new
ideas, compliments and suggestions —
non-anonymous riders would automatically be
entered into contests for free ticket vouchers and
other prizes

Map on the Bus

Graphic representations of the bus route posted on
the bus

Paper Media Bank

Supply magazines and newspapers to riders for their enjoyment

Informational Brochures

Provide general information about the Pace system in one concise brochure

Transfers

Greater transfer flexibility on Pace and with other Chicago transportation.

Rewards

Give coupons to good citizens and frequent riders (frequent rider miles)

Expanded service

Increase the number of routes and times on Sundays

Bus on Demand

Provide door to door service

Shopping Services

Create routes tailored for weekend shoppers and provide space on the bus for their purchases

Route Frequency

Vary the frequency of buses on particular routes during rush hour and other pre-determined times

Tickets

Charge less money for a shorter distance

Cleanliness

Keep buses clean

Music

Provide music channels on the bus, accessible to anyone with headphones and preemptible by the bus PA system

Route Customization

When a bus driver is able, deviate from the scripted route to better suit the needs of the rider (e.g., drop passengers at their homes at the end of a shift when the bus is otherwise empty)

Safety Walkers

Provide as a service an escort to walk people to their front doors, scheduled ahead of time

Better Seats

Add tables to chair backs and make seats more comfortable

Bathrooms

Provide for "bio breaks" either on the bus or at stops

Different Sized Units

Provide smaller units for more sparse routes and larger buses on busy routes

Shelters

• Provide heat
• Provide more comfortable seats
• Add more Pace information at each shelter
• Develop multiple designs for shelters

Kiosks at Major Transfer Points

• Install kiosks at major transfer points
• Provide route information
• Provide smart card that remembers route preferences
  • doubles as RFID transit card
  • allows Pace to monitor route usage
• Emphasize landmarks and events on relevant routes

Suburban Landmark-Based Trip Planning

Apply to web-based trip planner
Highlight landmarks on paper schedule/route maps
Advertise suburban attractions as destinations outside the city
• negotiating with attractions to subsidize
• loss of money from Pace/CTA connection

Connections

Provide electrical sockets and wireless connections

**Synthesi
s**

Vending

Sell coffee and snacks at bus stops as well as headphones, ear plugs and digital content at stops or on the bus

Smart Card + Tablet

interface at the back of each seat with both generic and

personal mode to process orders, provide information, entertain, and connect

Smart Card + Pace Database + Direct Mail System

Smart Card access to Personalize Database

Process Orders

Ticket / Monthly / Bulk Ticket pass Purchase Point
Take user input for route preferences
Take user opinion on PACE services

Provide Information

Generic

schedule, routes, transit info
city / suburban events and activities

Personal

read and prompt user's account info
inform mileage earned and special deals
inform special event that the user might be interested in

Entertain

"Neighborhood at a glance" calendar of events and:
- Local and national news
- Games and Features

Connect

Connect local businesses and community by creating a
network with local retailers and service providers
- Offer a database of service providers and retailers with
updated promotional information to the customers
- Offer pick up and delivery services on special buses

Single Seats

If space allows, have more single bus seats available for passengers

Spotless Shelters

Keep shelters impeccably clean and therefore more inviting

Bus Only Lane / Carpool Lanes

Create a special lane for busses in order to avoid the delays due to traffic, providing timely service

Customer Appreciation Day

On occasional customer appreciation days, prepackaged snacks would be handed out to riders, free tickets for future use could be given, or coupons from local businesses. This would be geared towards all riders, regardless if they were frequent riders or not.

Local Business Affiliation

Link up with local businesses and hand out coupons to be redeemed by riders at their establishment. This can be done during Customer Appreciation Days, to frequent riders, or to random riders.

Taxes/incentives/smart power

tax credits for using Pace

city taxes subsidizing Pace, lowering fares

corporation involvement

tax-exempt payroll deduction for Pace fare

Frequent rider/buyer benefits

Tax gas to retrofit the bus fleet to be more energy efficient and green.

TIVO

Add TiVo to buses

What's Next

Drivers' view points, tying back to our analysis & synthesis process….