

In the Age of the Automobile What Makes People Bike?

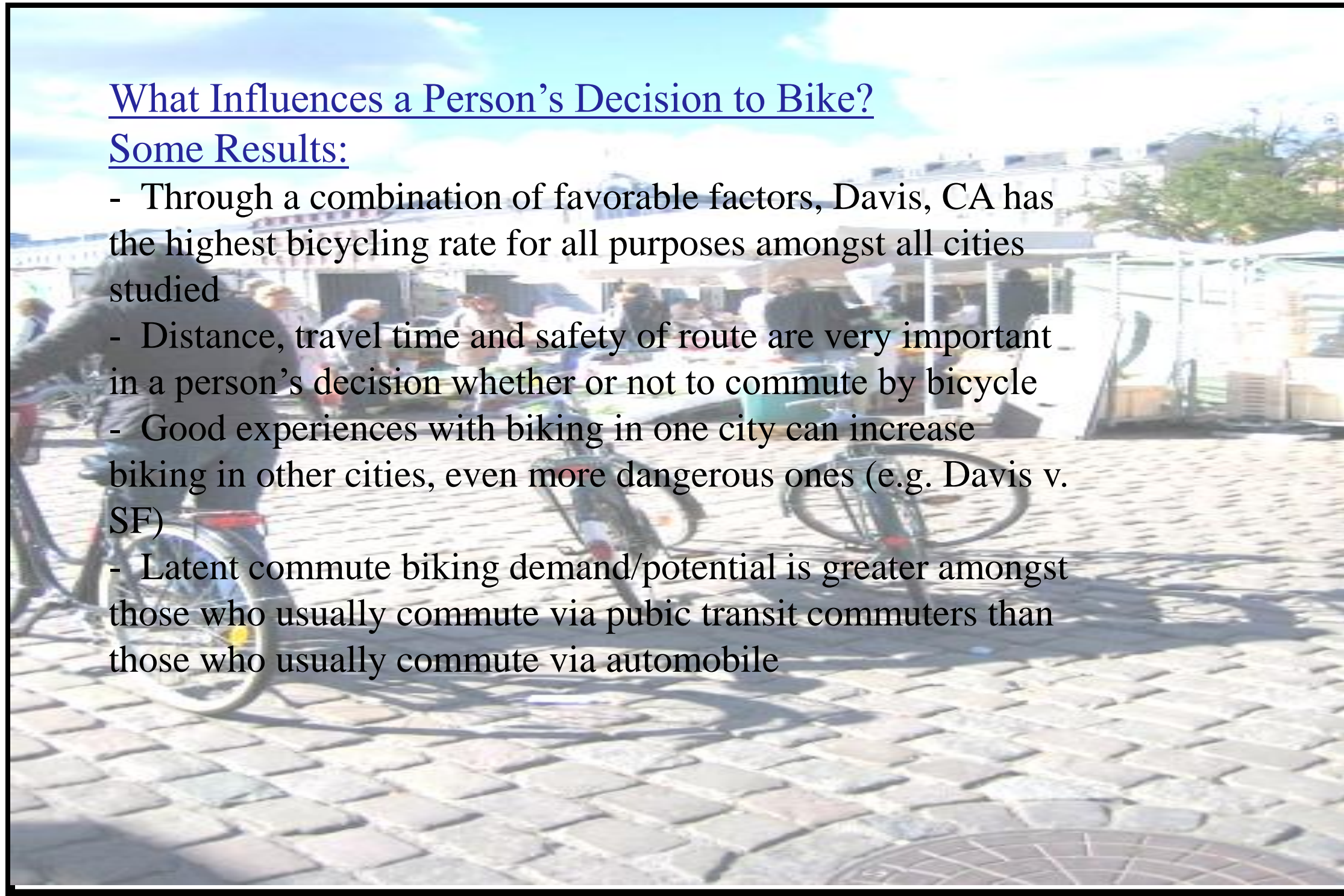
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What Influences a Person's Decision to Bike?

Some Results:

- Through a combination of favorable factors, Davis, CA has the highest bicycling rate for all purposes amongst all cities studied
- Distance, travel time and safety of route are very important in a person's decision whether or not to commute by bicycle
- Good experiences with biking in one city can increase biking in other cities, even more dangerous ones (e.g. Davis v. SF)
- Latent commute biking demand/potential is greater amongst those who usually commute via public transit commuters than those who usually commute via automobile



Why Study Bicycling Habits?

- Global warming and local air pollution
 - Transportation sector produced:
 - 14% of 2005 U.S. NO_x emissions (CO₂ equivalent)
 - 33% of 2005 U.S. CO₂ emissions, etc.
 - Motor gasoline accounts for 60% of transportation sector carbon emissions
 - See e.g. <http://www.eia.doe.gov/oiaf/1605/ggrpt/index.html>
- Obesity "epidemic" in U.S.
- When planned for effectively, bicycling can help alleviate these problems



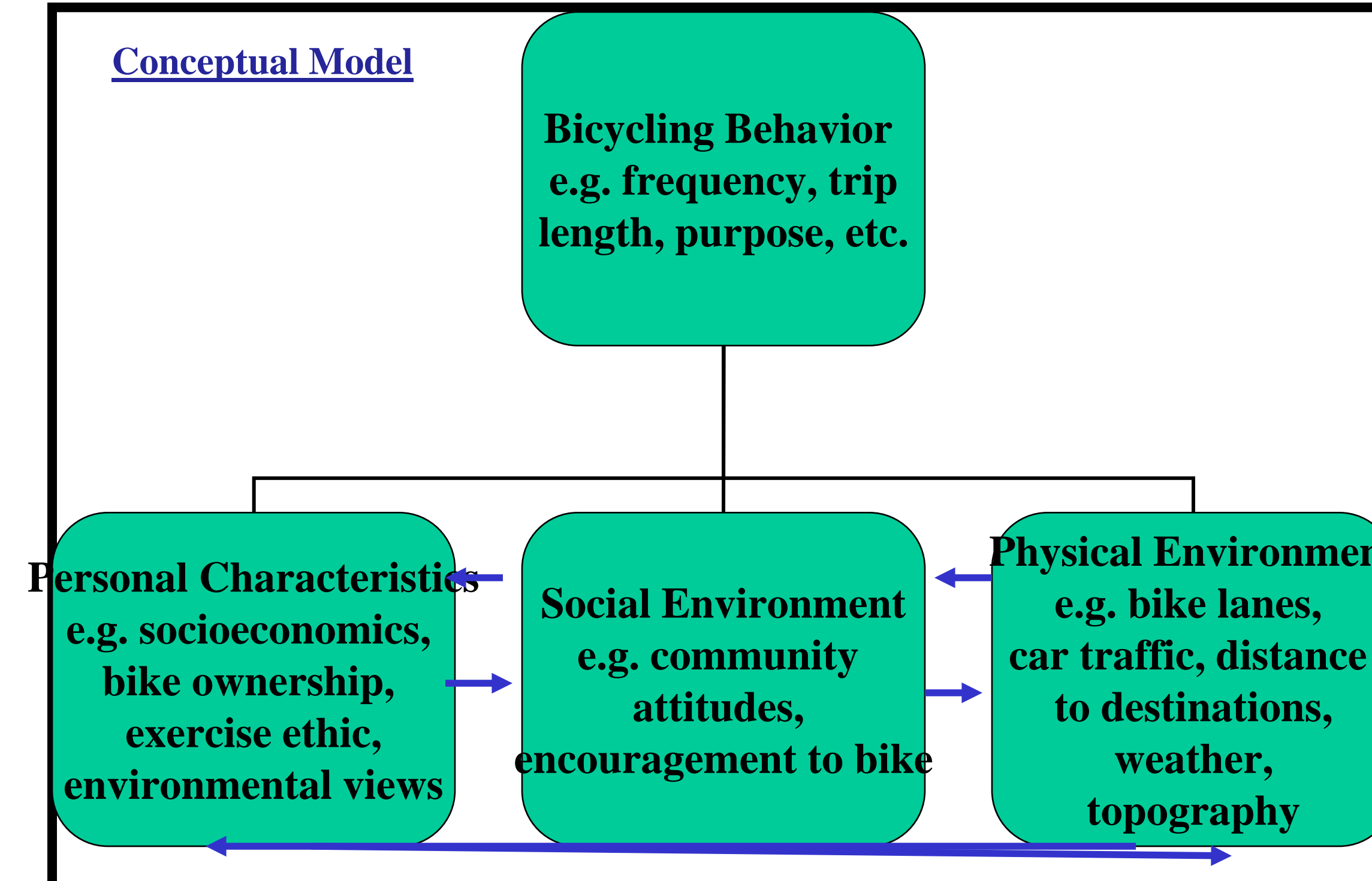
•Why Study Bicycling Habits?

- Bicycles have been called "the most efficient machines"
 - Almost completely non-polluting
 - A great way to get aerobic exercise
- However, bicycling currently accounts for <1% of all household trips made in the U.S (Pucher and Renne, 2003).
- Much higher bicycle modal share in some European countries like Germany and the Netherlands and even some American cities like Davis, CA
 - 15% of Davis residents bike to work (U.S. Census Bureau, 2000)
 - 28% of all urban trips in the Netherlands were made by bicycle in 1995 (Pucher and Renne, 2003)
- The question is: what factors lead or inhibit high rates of bicycling?

Methodology

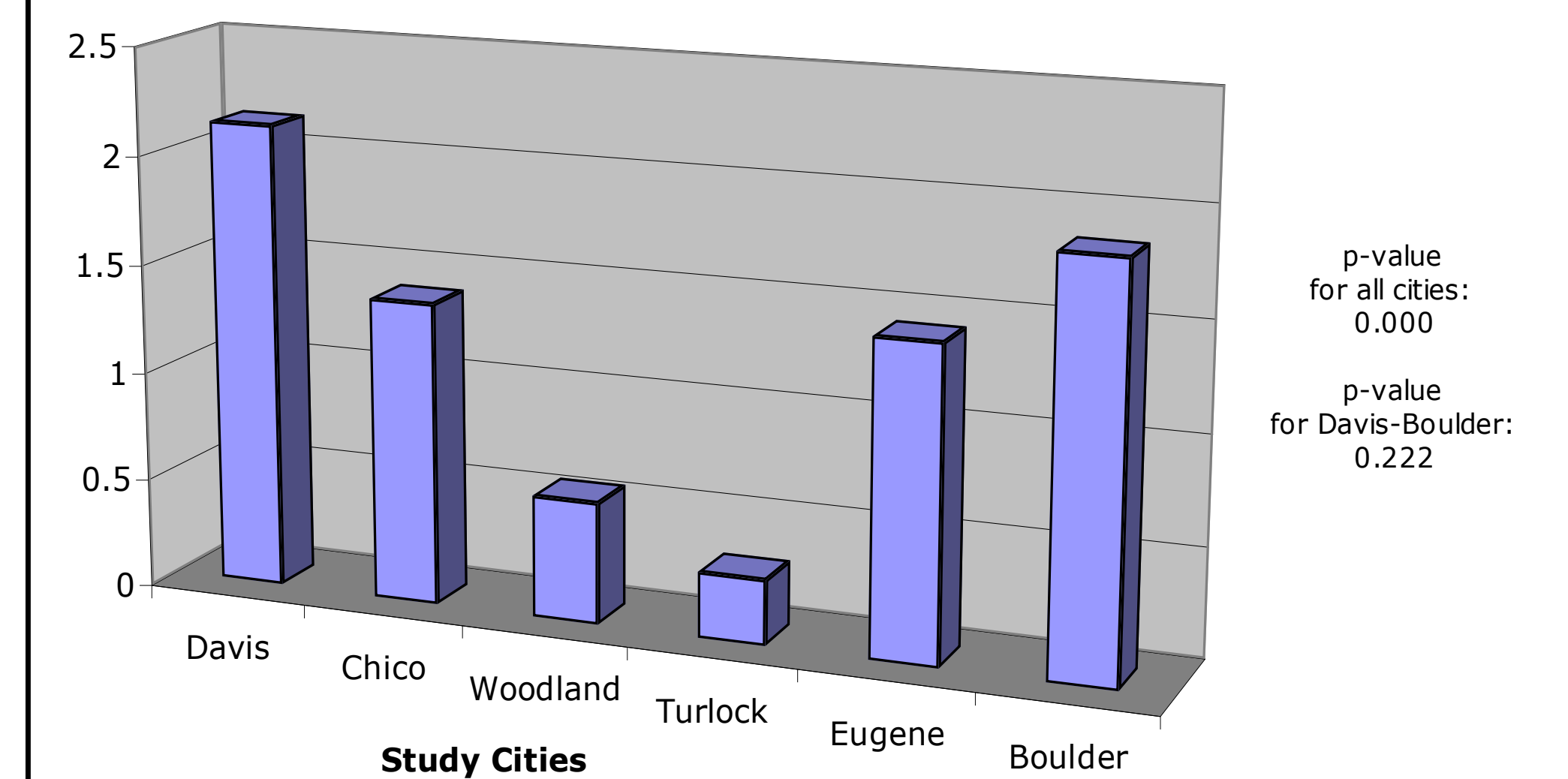
- 1) Cross-sectional survey of 6 U.S. cities, chosen for their diversity of bike infrastructure, culture, land area, topography, weather, etc.:
 - Davis, CA
 - Chico, CA
 - Turlock, CA
 - Woodland, CA
 - Boulder, CO
 - Eugene, OR
 - 2) Quasi-longitudinal survey of bicycling habits in Davis, CA
 - done via additional questions appended to the cross-sectional survey (depending on residency time, one of two sets of questions were added)
 - 3) Focus groups with UC Davis students, faculty and staff
 - 4) Extensive literature review
- Note: surveys administered via internet (or mail-back hard copy if requested), with initial solicitations and reminders mailed out

Conceptual Model



Initial Cross-Sectional Findings

Days Biked per Week per Capita



Literature Review Findings

- Factors most highly correlated with a person's choice to commute by bicycle:
 1. distance
 2. travel time
 3. safety (which includes the provisioning of bike lanes and routes)
- Secondary factors:
 1. weather
 2. needing a car for work
 3. exercise drive/ health consciousness
 4. availability of car
- Tertiary factors:
 1. availability of transit
 2. social pressures
- Other findings:
 1. for frequent drivers, public transit tends to be a more desirable back-up means of commuting than bicycling
 2. employer and school incentive programs to increase bicycling can be effective
 3. men are more likely than women to bike for most purposes



• Focus Group Findings

- Most significant deterrents to utilitarian biking:
 - Staff: distance, time, cleanliness, fatigue, safety
 - Faculty: safety (lack of enforcement of bike rules, unaware drivers, unsafe bicyclists), distance
 - Students: inconvenience of maintenance, distance, safety, inability to carry lots of stuff
- Greatest benefits of biking
 - Less stressful than driving
 - Good exercise
 - More maneuverable than vehicles
 - Travel time is less variable
- No self-selection reported amongst students, faculty or staff
- Experience of bicycling in Davis encouraged some to bike more in other cities and, for a few, to actually move to a bicycle-friendly place upon leaving UCD
 - Thus, effect of place (exposure to better culture and infrastructure) can change bicycling behavior

Sources

- Energy Information Administration, United States Department of Energy, 2006. "Emissions of Greenhouse Gases in the United States 2005." Accessed at: <http://www.eia.doe.gov/oiaf/1605/ggrpt/pdf/057305.pdf>
- Pucher, J. and J.L. Renne. 2003. "Socioeconomics of Urban Travel: Evidence from the 2001 NHTS." *Transportation Quarterly* 57 (3).
- United States Census Bureau. 2000. *United States Census 2000*. Accessed at: http://factfinder.census.gov/home/saff/main.html?_lang=en

