Why this Research Matters?

**Social & Cognitive Development**
Growing up in cities
Personal agency and competency

**Safety**
Traffic
(Un)Safe Routes to School
- Boarnet et al. (2005), Wen et al. (2008)

**Health**
Motorized travel
Walking to school as daily physical activity
- Baig et al. (2009), Martin et al. (2016)
Literature Gap

Children’s eye-view?
Walking to school in inner city neighborhoods?

(McMillan, 2005; Banerjee, Uhm & Bahl, 2014)
How does the **perception** of the **ecology of the neighborhood** (built environment & social milieu) affect **children’s** walking **experience** to school?
Where?
5 Elementary Schools in City Heights, San Diego

When?
Fall 2014 - Spring 2016

Who?
135 children
88 parents
5 researchers
## Study Area

<table>
<thead>
<tr>
<th>School</th>
<th>Street Network</th>
<th>Area (sq.m.)</th>
<th>Total Enroll.</th>
<th>Ethnicities (%)</th>
<th>Free/Reduced Meal (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central</td>
<td></td>
<td>0.31</td>
<td>789</td>
<td>78% 14% 6%</td>
<td>96%</td>
</tr>
<tr>
<td>Euclid</td>
<td></td>
<td>0.20</td>
<td>603</td>
<td>74% 14% 9%</td>
<td>91%</td>
</tr>
<tr>
<td>Hamilton</td>
<td></td>
<td>0.50</td>
<td>547</td>
<td>70% 13% 14%</td>
<td>84%</td>
</tr>
<tr>
<td>Joyner</td>
<td></td>
<td>0.43</td>
<td>699</td>
<td>79% 9% 9%</td>
<td>80%</td>
</tr>
<tr>
<td>Rosa Parks</td>
<td></td>
<td>0.39</td>
<td>928</td>
<td>80% 15% 3%</td>
<td>95%</td>
</tr>
</tbody>
</table>
Methods

CHILDREN
Cognitive and perception maps / focus group discussion / photo evaluation / surveys / activity diary

PARENTS
Survey questionnaires

RESEARCHERS
Field Reconnaissance / Geo-referencing
Introduction and Consenting

Classroom session 1 - Children receive:
- Leaflet with explanations
- Parental consent form
- Parent survey questionnaire

Visual Representation

Classroom session 2
- Cognitive maps: a) Neighborhood b) Route to school
- Perception maps

External Evaluation 1
- Researchers take pictures of sites mentioned by children

Structured and Verbal Representation

Classroom session 3
- Children return parent survey questionnaire
  (current travel mode, perception of environmental risks, preferences for travel mode)
- Complete children survey questionnaires
  (current travel mode, experience, perception, preferences for travel mode)
- Group discussion: photo Evaluation

External Evaluation 2
- Researchers return to sites: assessment of built environment
Preliminary Findings

1. Two distinct trips
   - Walking to and walking from school are two different events

2. Acute awareness
   - Children show an acute awareness of risks and dangers

3. Different perceptions
   - Children most concerned with social dangers vs. parents with traffic safety
1. Trips

- $N = 78$
- Average route = 0.43 mile
1. Two distinct trips

<table>
<thead>
<tr>
<th></th>
<th>To School</th>
<th>From School</th>
</tr>
</thead>
<tbody>
<tr>
<td>Walk</td>
<td>74</td>
<td>80</td>
</tr>
<tr>
<td>Car (incl. carpooling)</td>
<td>65</td>
<td>56</td>
</tr>
<tr>
<td>School Bus</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Bike</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>140</td>
<td>138</td>
</tr>
</tbody>
</table>

- 85% walk most days, including 45% every day
- Most children walk with at least one parent: **54% to** and **42% from** school
2. Acute Awareness

*Total N = 122*

- **Place**
  - N = 7

- **Street**
  - N = 60

- **Community**
  - N = 55

- On average, children drew 23 “items”
## 2. Acute Awareness

<table>
<thead>
<tr>
<th>Category</th>
<th>Content Description</th>
<th>Content Prevalence (Number of Maps)</th>
<th>Frequency (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Urban context and form</strong></td>
<td>Streets</td>
<td>116</td>
<td>95%</td>
</tr>
<tr>
<td></td>
<td>Other houses/apts.</td>
<td>109</td>
<td>89%</td>
</tr>
<tr>
<td><strong>Personal Cognitive Anchors</strong></td>
<td>My home</td>
<td>93</td>
<td>76%</td>
</tr>
<tr>
<td></td>
<td>School</td>
<td>90</td>
<td>74%</td>
</tr>
<tr>
<td><strong>Streetscape/functional</strong></td>
<td>Fence/gate</td>
<td>59</td>
<td>48%</td>
</tr>
<tr>
<td></td>
<td>Retail stores</td>
<td>54</td>
<td>44%</td>
</tr>
<tr>
<td></td>
<td>Cars</td>
<td>50</td>
<td>41%</td>
</tr>
<tr>
<td><strong>Landscape/Appearance</strong></td>
<td>Park/playground</td>
<td>44</td>
<td>36%</td>
</tr>
<tr>
<td></td>
<td>Trees</td>
<td>43</td>
<td>35%</td>
</tr>
<tr>
<td></td>
<td>Parking lot</td>
<td>42</td>
<td>34%</td>
</tr>
<tr>
<td></td>
<td>Shrubbery</td>
<td>40</td>
<td>33%</td>
</tr>
<tr>
<td></td>
<td>Signs</td>
<td>35</td>
<td>29%</td>
</tr>
</tbody>
</table>
271 places were identified
- 67% liked (mostly commercial)
- 23% disliked
- 10% unsafe
2. Acute Awareness

Examples of disliked places

“I don’t like because I see strangers hanging around there”

“I don’t like because when I’m crossing there there is a lot of cars passing”

“I don’t like Van Dyke Ave because there are a lot of gang members”
69%

Reported feeling **UNSAFE**
when walking to school
Different Perceptions

Children’s Barriers: Factors of the social milieu
Different Perceptions

Parents’ Barriers: Factors of the **built environment**

- Large crossroad
- No street signal/stop sign
- Fast traffic
- Graffiti
- Dark alleys
- Parking lot
- Liquor store
- Gang activity
- Abandoned car
- Homeless people
- No sidewalk
- Abandoned building
- Adult shops
- Building with broken windows
- Bar
- Vacant lots
- Underpasses
- Canyon
- Cracked sidewalks
- Thieves
Policy Recommendations

1. Target trips to and from school differently

2. Address children’s concerns about gangs, drugs and crime
1. Walking propensity = f (parents’ walking behavior and demographics, factors of the built environment)

2. Milieu awareness = f (walking propensity and walking experience)

3. Route/ mode choice = f (milieu awareness, factors of the built environment, parental behavior and demographics)
Thank you!

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