
Identifying and Measuring Environmental Determinants of Physical Activity

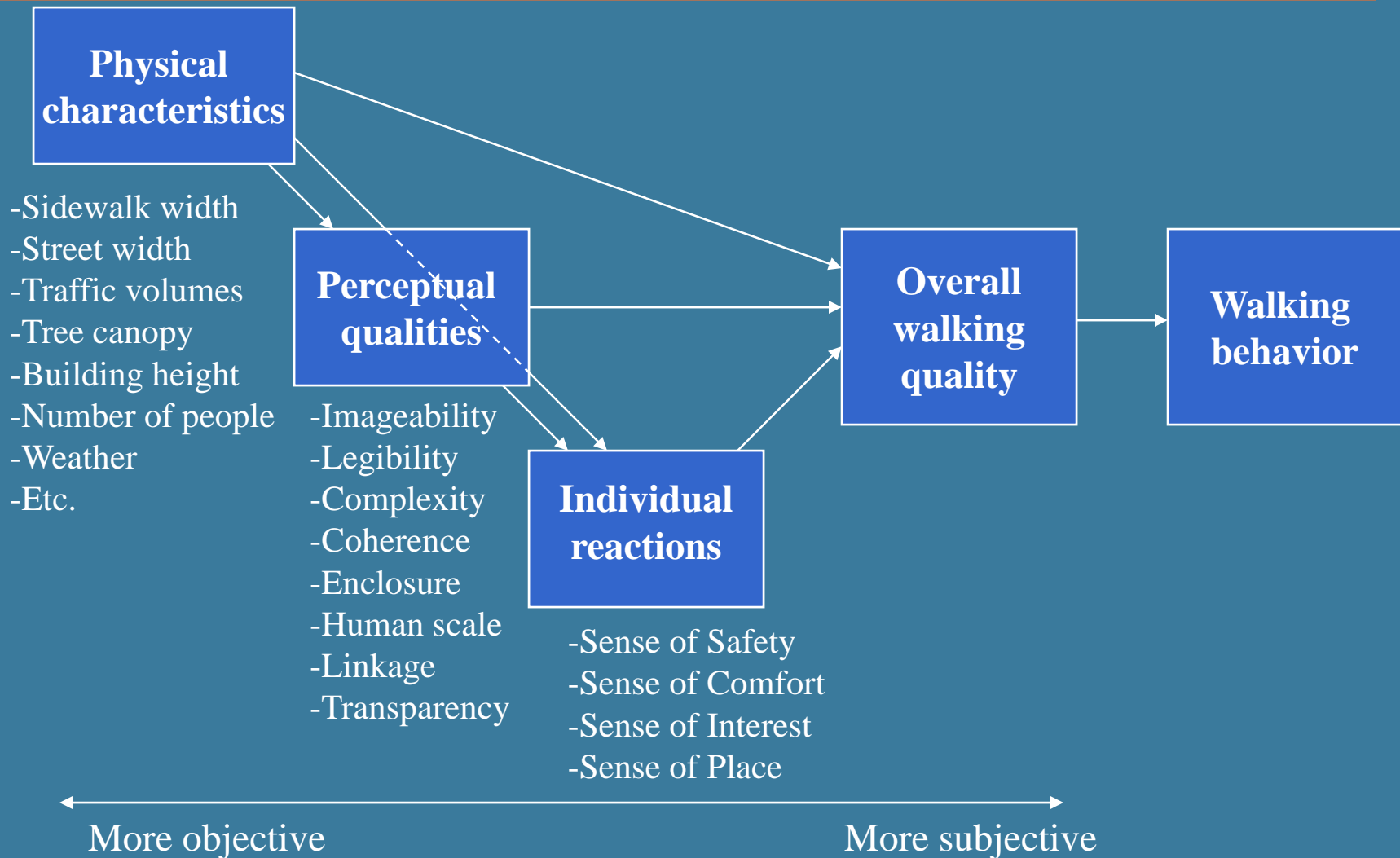
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Genesis of Project

- Lynch, Jacobs, and Others
- Original ALR Proposal
- Revised ALR Work Plan

Conceptual Framework



Work Plan

- Expert Panel
- Literature Review with Definitions
- Library of Video Clips
- Visual Assessment Survey
- Quantitative and Qualitative Analyses
- Instrument Development, Testing, and Training
- Illustrated Field Manual

National Expert Panel

- Victor Dover - urban designer
- Rob Lane - urban designer
- Geoffrey Ferrell - urban designer/code expert
- Tony Nelessen - urban designer
- Anne Vernez Moudon - urban designer/planner
- Mark Francis - landscape architect
- Michael Southworth - urban designer
- Michael Kwartler - architect/simulations expert
- John Peponis - architect/space syntax expert
- Dan Stokols - social ecologist

Perceptual Qualities

41 qualities



8 qualities

- Imageability
- Enclosure
- Human Scale
- Transparency
- Linkage
- Complexity
- Coherence
- Legibility

Textbook Definitions

Imageability is the quality of a place that makes it recognizable and memorable. A place has high imageability when specific physical elements and their arrangement evoke distinct images or positive feelings.

Filming Protocol

Using the "Canon Wide Attachment WA-30.5" lens and zooming out as far as possible manually, follow this filming protocol:

- start about 20 feet from the beginning of the block on the outside of the sidewalk
- walk slowly forward in the direction of adjacent traffic at a speed of approximately 1 mph
- as you move forward, pan slowly and continuously following the same sequence
- looking straight ahead, pan down 30 degrees, pan up 30 degrees, back to level
- pan 45 degrees right, pan up to the top of adjacent buildings or trees, and back to level
- etc.

Video Library

- Urban Streetscapes
- 22 Cities
- 205 Video Clips
- 86 Clips Rated by Research Team
- 48 Clips Rated by Panel




Fractional Factorial Design

run	Imageability	Enclosure	Human Scale	Transparency	Linkage	Complexity	Coherence	Legibility
1	0	0	0	0	0	0	0	0
2	1	0	0	0	0	1	1	1
3	0	1	0	0	1	0	1	1
4	1	1	0	0	1	1	0	0
5	0	0	1	0	1	1	1	0
6	1	0	1	0	1	0	0	1
7	0	1	1	0	0	1	0	1
8	1	1	1	0	0	0	1	0
9	0	0	0	1	1	1	0	1
10	1	0	0	1	1	0	1	0
11	0	1	0	1	0	1	1	0
12	1	1	0	1	0	0	0	1
13	0	0	1	1	0	0	1	1
14	1	0	1	1	0	1	0	0
15	0	1	1	1	1	0	0	0
16	1	1	1	1	1	1	1	1

full factorial design =
 2^8 design = 256 clips

1/16 fractional design =
 2^{8-4} design = 16 clips

Visual Assessment Survey

Identifying and Measuring Environmental Determinants of Physical Activity: Expert Panel Survey Sheet												
	Imageability	Enclosure	Human Scale	Transparency	Linkage	Complexity	Coherence	Tidiness	Legibility	Walking Quality	Comments	
Scene 14	5	5	5	5	5	4	4	4	5	4.6	Annapolis, MD	
Scene 15	4	5	4	3	4	2	4	4	3	3.5	Charlotte, NC	
Scene 16	3	4	3	4	4	3	4	4	3	4.2	Delray Beach, FL	

Expert Panel Meeting



Refined Definitions

Imageability is the quality of a place that makes it **distinct**, recognizable, and memorable. A place has high imageability when specific physical elements and their arrangement **capture attention**, evoke feelings, and create a **lasting impression**.

Rough Operational Definitions

IMAGEABILITY

- presence of a landmark in the scene?
- memorable architecture?
- possesses one or more bldgs, trees, signs or monuments that are unique to that place?

16 Additional Clips



Individual Ratings

	Imageability	Enclosure	Human Scale	Transparency	Linkage	Complexity	Coherence	Tidiness	Legibility	Walking Quality
Peponis	4	4	5	3	3	4	4	2	4	4
Southworth	5	5	5	4	4	3	4	3	5	5
Lane	5	5	5	5	5	5	5	4	5	5
Ferrell	5	4	5	4	4	4	5	4	5	4.8
Nelessen	4	4	4	4	4	4	4	3	4	4
Dover	5	4	5	5	5	5	4	5	5	5.0



Correlations (16 clips, 6 panelists)

Model Summary				
Model	R	R Square	Adjusted R	Std. Error
1.00	0.87	0.77	0.74	0.51
a	Predictors: (Constant), Legibility, TIDINESS			

Coefficients(a)								
Model		Unstandardized Coeff	Standardiz	t	Sig.	Collinearity	Statistics	
		B	Std. Error	Beta		Tolerance	VIF	
1.00	(Constant)	-0.22	0.28		-0.81	0.42		
	Imageability	0.11	0.09	0.11	1.26	0.21	0.36	2.78
	Enclosure	0.10	0.10	0.11	1.04	0.30	0.25	3.95
	Human Scale	0.36	0.09	0.37	3.93	0.00	0.31	3.18
	Transparency	-0.02	0.08	-0.02	-0.24	0.81	0.29	3.46
	LINKAGE	0.07	0.08	0.08	0.79	0.43	0.29	3.40
	Complexity	0.15	0.09	0.16	1.76	0.08	0.35	2.84
	Coherence	0.12	0.09	0.13	1.42	0.16	0.34	2.97
	TIDINESS	0.09	0.07	0.08	1.25	0.22	0.62	1.62
	Legibility	0.10	0.10	0.10	1.05	0.30	0.30	3.36
a	Dependent Variable: Walking Quality							

ANOVA Inter-Rater Reliability (one quality, 6 raters)

Reliability Coefficients					
N of Cases =	16.0		N of Items =	6	
r =	.9010				

One Tough Project
One Cool Project

ETA 12/04