Spatial Behavior of Surfers

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Overview

- Spatial Behavior, Perception, and Cognition
- Wayfinding and Orientation
- Territoriality (Localism)
  - Description
  - Building a theory of localism
  - Policy Discussion

Spatial Behavior, Perception, and Cognition

- Perception
  - Knowledge acquisition through the senses
    - Sensory systems: vision, hearing, smelling, tasting, pressure and texture, temperature, kinesthesia (limb position and movement), and vestibular senses (gravity and body acceleration)
- Cognition
  - Knowledge acquisition, storage/retrieval, manipulation, and use.
  - Cognitive functions: sensation/perception, thinking, imagery, reasoning, problem-solving, memory, learning, and language.

Wayfinding and Orientation

- Orientation:
  - Definition: knowing where you are and where to go
  - Orientation scales: scenes (front visual field), surrounds (360 scenes), neighborhoods (points not visible, but still local), regions (only knowable through maps)
- Navigation/Wayfinding:
  - Definition: coordinated and goal-directed route through space.
  - Reference frame: absolute versus relative (exo- or ego-centric)
  - Wayfinding methods: tracking (cues from scales < region, exo), dead reckoning (direction & distance, abs), piloting (ego-centric bearing & exo-centric cues, no distance)

Territoriality (Localism) - Description

- What is localism?

- What are the spatial, environmental, socio-economic, and demographic correlates of localism?

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<thead>
<tr>
<th>Positives/Negatives</th>
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<tbody>
<tr>
<td>Positive:</td>
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<tr>
<td>(+) Self-preservation</td>
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<tr>
<td>(+) Crowd control / safety</td>
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<td>(+) Place preservation in terms of the human-cultural content and environmental content</td>
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<table>
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<th>Negative:</th>
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<tr>
<td>(-) Violence</td>
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<tr>
<td>(-) Vibe impacts on the aesthetics of the surfing experience. This occurs at the personal level, person-environment level, and interpersonal level</td>
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<td>(-) Letting negative behavior go unchecked may result in the government imposing policies that severely limit surfing freedom</td>
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<td>(-) Limits where an individual can surf</td>
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<td>(-) Impact on local earning (resulting) based on surfing</td>
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- Goals versus means (or means versus ends)
Territoriality (Localism) – A Theory of Localism

- Model
  
  \[ \text{Localism} = f(\text{population, proportion surfing, topography, local culture}) \]

- Alternative theory bases
  
  - Sociobiology (Genetic heritage or acculturation)
  - Economics (Public goods and externalities)
  - Ethics (strategic games, game theory)

Territoriality (Localism) – Sociobiology

- Social interaction / behavior has a strong genetic (evolutionary) component


  “In short, the territorial strategy evolved is the one that maximizes the increment due to extraction of energy from the defended area as compared with the loss of fitness due to the efforts and perils of defense.”

- Little consensus on genetic versus acculturation in humans. Both are important.

Territoriality (Localism) – Sociobiology (cont.)

- Decomposes components of competition

- Intersection of lines defines equilibrium density of non-locals in line-up.

- Formalizes topography (area & perimeter). Beach breaks are harder to defend, more energy patrolling. Reef breaks are spatially defined and easier to defend.

- Equilibrium can result from high I / high E or low I / low E.

- Model is intrinsically dynamic and contains uncertainty.

- Hening’s Basketball Court.

Territoriality (Localism) – Economics

- Problems with sociobiology: mechanical, cognition, policy.

- Economics:
  
  - explicit behavioral assumptions for individuals
  - ethical/theory base for choice among competing policies
  - defines when government should intervene.

- Economic models:
  
  - allocation of goods / services
  - allocation is optimal when …
  - assumptions on prices, uncertainty, market structure
  - market supply and market demand.
Territoriality (Localism) – Economics (cont.)

- Supply and Demand in Surfing (ill-defined?)
- Public Economics: allocation under restricted assumptions.
- Pure Public Good:
  - non-rival
  - non-excludable (free-rider problem)
- Waves are non-rival up to some density (d<D), for higher densities (d>D), waves are rival.
- Externalities: price mechanism (MPC) is not reflective of social costs (MSC). Without intervention → crowding.

Territoriality (Localism) – Ethics

- Ethics: How ought we act towards fellow surfers? How ought we act towards the surf environment?
- Hardin’s *Tragedy of the Commons*
  - self-interest versus community
  - uncertainty and reciprocity
  - ethical prescription: assume reciprocity
- Alternative: Game Theory
  - Equilibrium under alternative assumptions
  - Robust or fragile equilibrium (violence)

Territoriality (Localism) – Economics (cont.)

- Prices in Surfing.
  A. No localism
  B. Increased prices (costs) due to localism

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<thead>
<tr>
<th></th>
<th>Formal</th>
<th>Informal</th>
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<tbody>
<tr>
<td>Surboard, wetsuit, wax, food, leashes, board repairs</td>
<td></td>
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<tr>
<td>Transportation costs (gas money, car maintenance, etc.)</td>
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<tr>
<td>Uncertainty about wave and crowd conditions; time costs (opportunity costs)</td>
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- Solutions: define market (Hollister Ranch), regulation.

Territoriality (Localism) – Ethics

- Ethical Code: *Tribal Law, Surfriders Code of Ethics*
  1. Right of way priority A. Furthest out or waiting the longest
  2. Right of way priority B. Furthest inside and closest to the peak
  3. Right of way priority C. First to feet or first on wave
  4. Right of way priority D. Call left or right (communicate)
  5. Do not snake or drop in
  6. Paddle wide using the rip
  7. If caught inside, stay in the white water
  8. Do not throw, or let go of, your board
  9. Respect the beach, the ocean, and others
  10. Give respect to gain respect

Territoriality (Localism) – Ethics

- No state intervention except assistance in assimilation (teaching) and dialog
- Ethical norms are taught and enforced through dialog or shunning
- The Groundswell Society