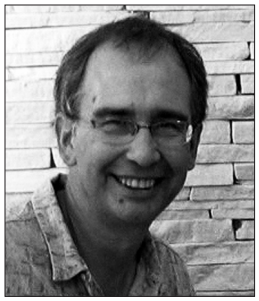
Attitudes Towards Sustainable Cities: Are Sustainable Cities Livable Cities?

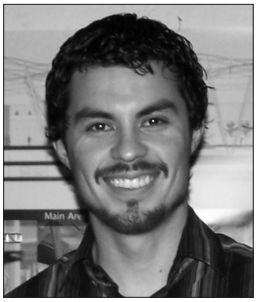
Daniel Levi with
Rick Casswell, Ulises Gonzales & Armando Lopez



Daniel Levi, PhD. is a professor of environmental pyschology at Cal Poly.

Rick Casswell (MCRP Cal Poly, 2009) works as a planning consultant.

Ulises A. Gonzalez (MCRP Cal Poly, 2009) is a Graduate Housing Fellow with the Congressional Hispanic Caucus Institute, working at HUD - US Dept. of Housing and Urban Development.



Armando Lopez Jr., BA in Architecture (Cal Poly), is currently a studenty in the MCRP program.

In his environmental psychology class, professor Daniel Levi posed a question to grad students Rick, Ulises and Armando: are sustainable cities also good places for people to live in? This article is based on the results they obtained from a survey with Cal Poly students which investigated the perceived livability and human impacts of several planning aspects expected in a sustainable city.

Sustainability is a current trend in urban planning that encourages cities, counties, and regions to have less environmental impact. Promoting cities that are green, pedestrian friendly, and compact creates benefits to the environment; however, it is unclear how people perceive the human impacts of various proposals for sustainability.

Sustainable development relates to urban designs that lower energy and resource use and pollution (Jabareen, 2006). Sustainable design concepts include compactness and density, mixed land use, social and housing diversity, sustainable transportation, passive solar design, and integrating nature into the urban environment. Compactness and density minimize sprawl and transportation use, protect the surrounding rural environment, and reduce energy consumption and pollution. Mixed land use reduces the use of cars for commuting, shopping, and recreation. Social and housing diversity are important for economic stability and environmental justice. Sustainable transportation uses walking, cycling, and public transportation to reduce energy consumption and pollution. Passive solar design reduces residential energy consumption. Natural areas within and surrounding a community reduce pollution and help to preserve ecological diversity.

There is certainly a need to create sustainable cities from an environmental perspective, but are these sustainable cities good places for people? Livability refers to the quality of life for a group of people who live in a particular environment (del Rio, Levi, & Duarte, 2010). Livable environments are places that people like, satisfy people's needs, promote human health, and contribute to a sustainable ecosystem. The livability of an urban environment relates to features that promote residential and neighborhood satisfaction, a sense of community, and environmental sustainability.

The characteristics of sustainable cities have a variety of positive psychological and social effects. Increased density helps to promote neighboring and a sense of community. Mixed land use has been linked to increases in neighborhood social interactions and a sense of community. Sustainable transportation promotes walking and human health. Natural environments in urban areas reduce stress and promote health. However, there are characteristics of sustainable cities that people may not prefer. Higher residential density means more crowded and stressful environments. Mixed land uses can lead to conflicts between commercial and residential users. Reliance on public transportation reduces flexibility and independence.

The goals of this research project were to examine students' views of the human impacts of sustainable cities. Are sustainable cities livable places? What are the perceived human benefits and problems of sustainable cities? In addition, we wanted to see if the designers of sustainable cities (planning and architecture students) had different views about sustainability due to their education.

Methods & Results

In order to examine the perceived livability of sustainable cities, we developed a survey that had students evaluate eight sustainability design concepts identified by Jabareen (2006). Table 1 presents the description of the sustainability design concepts used in the survey. The students were asked to rate each of these design concepts on a scale from 1 – mostly a problem -- to 5 – mostly a benefit for people. In addition, they were asked to describe the main benefits and problems with each design concept.

One hundred and eighty-three Cal Poly students participated in the survey. The students were from upper-level undergraduate and graduate classes in CRP (27%), Architecture (27%), and General Education (46%). The sample was about equally divided by gender.

Figure 1 presents the results of the ratings in order of the amount of perceived benefit to people. Three of the design concepts (greening, passive solar design, and sustainable transport) were viewed as a benefit by over 80% of the students, and there were no differences among the students' majors. Mixed land use, housing diversity, and social diversity were viewed a benefit by over 50% of the students. The CRP students were more supportive of these sustainability design concepts than the Architecture and General Education students. Compactness and density were viewed as a benefit by less than 50% of the students. The CRP and Architecture students were more supportive of these planning concepts than the General Education students.

Table 1
Design Concepts of Sustainable Cities

1. Compactness – urban areas should be limited in how much they can expand by preventing their boundaries from growing.
2. Sustainable Transport – cities should support walking, cycling, and efficient public transport.
3. Density – people should live in higher densities; there should be more people and dwelling units in a given area.
4. Mixed Land Uses – compatible land uses, such as housing, commercial areas, and offices, should be located close to each other.
5. Housing Diversity – different types, styles, and densities within urban areas.
6. Social Diversity – a variety of income-level groups and cultures within urban areas.
7. Passive Solar Design – the design, siting, orientation, layout and landscaping of buildings should be optimized for solar gain.
8. Greening – more nature should be integrated into cities through parks, street trees, etc.

The benefits and problems with sustainable cities identified by the students are summarized in Table 2. While there was a broad range of problems and benefits listed by the students for the eight sustainability design concepts, there were some frequently occurring issues that arose throughout the survey. The most prominent human benefits of the sustainable cities were less pollution (or a cleaner environment), healthier environments (which related to walking, recreation and stress), convenience (including improved access to services), and cultural diversity. The most common human problems associated with sustainable cities identified on the survey included crowding, less privacy or personal space (such as backyards), crime and related issues (such as fear and lack of safety), and social conflict.

Data used for Table 1 / Attitudes toward Sustainable Cities (Percent who viewed the design concepts as a benefit for people)

	CRP	Architecture	General Education
Greening	96%	91%	94%
Passive Solar Design	83%	84%	86%
Sustainable Transport	85%	92%	80%
Mixed Land Use	79%	63%	38%
Housing Diversity	75%	49%	41%
Social Diversity	67%	43%	35%
Compactness	69%	46%	26%
Density	38%	41%	8%

Conclusions

Creating sustainable cities is important for environmental reasons, but in order to encourage the development of sustainable cities people must want to live in them. How do we design and market sustainable cities to make them more acceptable to people? How do we deal with the legitimate concerns people have about sustainability?

The results of this survey of Cal Poly students show some of the perceived benefits and problems with sustainable cities. Some sustainability design concepts (such as greening, passive solar design, and sustainable transport) are widely perceived as benefits to people. Other sustainability design concepts received a mixed response from the students. It is important to acknowledge these concerns about sustainable cities, and to design appropriate solutions to address them.

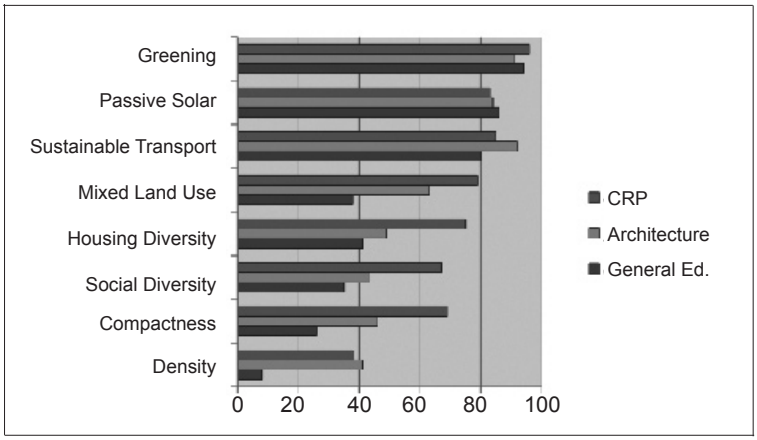


Figure 1: *Attitudes toward Sustainable Cities (percent who viewed the design concepts as a benefit to people)*

Table 2: *Perceived Benefits and Problems with Sustainable Cities*

	Top Benefits	Top Problems
Greening	Aesthetically pleasing Less stressful & healthier Cleaner air / environment	Initial & maintenance cost Crime / homeless Loss of developable land
Passive Solar Design	Saves money (long term) Cleaner environment Less energy consumption	Initial cost of installation Bad design / aesthetics Unpredictable supply
Sustainable Transport	More exercise / healthy Less air pollution Lower transportation costs	Not convenient Limited access Schedule not flexible
Mixed Land Uses	More access to services Less driving & more walking Convenience	Traffic & noise Incompatible uses & conflicts Crowding
Housing Diversity	Cultural diversity Economic diversity More housing options	Culture clash / conflict Lower sense of community Crime / safety
Social Diversity	Multicultural education Equality of access to schools Cultural diversity	Conflict Fear / crime / safety Intolerance / prejudice
Compactness	Less car travel Closer to services and amenities More physical activity & walking	Crowding Less personal space & privacy Rise in housing prices
Density	Stronger sense of community Closer to services & amenities Less pollution	Crowding Less personal space & privacy Noise & health issues

Compactness and increased density were viewed as creating problems related to crowding, privacy, and a lack of personal space. Providing more green spaces and better sustainable transportion to recreation areas can help to mitigate these concerns. Mixed land uses, housing diversity, and social diversity were related to concerns about social conflicts, crime, and safety issues. One approach for dealing with these concerns is the development of an increased sense of community. Sense of community relates to nearby access to public and social spaces, but it also includes social factors that are not directly related to design (Talen, 1999).

The CRP students had more positive attitudes toward sustainable cities than the other students, but they still had reservations. Students should not be asked to design places where they would not want to live. It is important to teach design students how to make sustainable cities attractive and livable places. If these students have design concerns with sustainability, then they should learn how to design solutions for these concerns.

The social psychologist Kurt Lewin (1951) developed a theory of social change that examined the balance between the benefits (drivers) and problems (restrainers) of change. Although change agents often focus on the drivers of the change because that is what they want, it is the unmitigated restrainers that usually prevent the change from occurring. Sustainable cities have many environmental benefits in terms of land use, resources, and energy consumption. People are generally supportive of these environmental goals. But are they willing to support these environmental changes if they have negative impacts on people and their lifestyles? Promoters of sustainable cities must think about how to make their designs become perceived as a benefit to the people living in them.

References

del Rio, V., Levi, D. & Duarte, C. 2010. Perceived livability and sense of community: Lessons for designers from a favela in Rio de Janeiro, Brazil. In F. Wagner & R. Caves (eds.) Livable Communities (in press).

Jabareen, Yosef. 2006. Sustainable urban forms: Their typologies, models, and concepts. Journal of Planning Education and Research 26(1), 38-52.

Lewin, Kurt. 1951. Field Theory in Social Science. New York: Harper.

Talen, Emily. 1999. Sense of community and neighborhood form: An assessment of the social doctrine of New Urbanism. Urban Studies 36(8), 1361-1379.