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## Quality of Urban Life Studies: An Overview and Implications for Environment-Behaviour Research

Robert W. Marans\*

*University of Michigan, Ann Arbor, MI, USA*

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### Abstract

The growth of urban areas presents a challenge for local governments around the world. While the challenge is particularly formidable to policy makers and planners, it offers opportunities for environment-behaviour researchers to contribute to the resolution of urban problems.. Studies focusing on the quality of urban life (QOUL) offer such opportunities. The paper first presents an overview of QOUL studies. It then describes a number of conceptual models used to test relationships between objective urban conditions and QOUL. Finally, the models are elaborated so as to illustrate the manner in which environment-behaviour research can be conducted to inform urban policy, planning, and design.

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*Keywords:* Quality of urban life; subjective indicators; objective measures; survey research; conceptual models

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### 1. Introduction

It is well recognized that irrespective of what parts of the world we live in, each of our respective countries has been experiencing on-going migration from rural to urban areas. In fact, a recent UN report indicates that as of 2008, we reached a tipping point where more than half the world's population now lives in cities. According to an editorial in the September issue of Scientific American, cities grew by more than 10-fold during the 20th century reaching 2.8 billion people by 2000, The UN predicts that by

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\* Corresponding author. Tel.: 01-734-763-9818; fax: 01-734-647-5390.  
E-mail address: [marans@umich.edu](mailto:marans@umich.edu).

2050, the number of urban dwellers is expected to surpass 6 billion. Furthermore, two out of every three people born during the next 30 years is likely to live in cities (Editors, 2011).

While the size of cities will surely become larger, it is unclear how conditions in these larger cities and the quality of life for their inhabitants will be affected. As researchers and professionals interested in cities, we can generally agree what is meant by the urban condition. Some of us might think about the physical layout of the city, its morphology, or specific attributes contributing to its aesthetic quality, its vitality, or its functionality. Others may think about an array of physical characteristics together with its social and cultural mix.

But what do we mean by quality of life (QOL)? QOL is certainly a multi-faceted concept that is frequently used in the media and by politicians but defies precise definition. Often it is difficult to differentiate between the notions of QOL, well-being, satisfaction, and happiness. Over the years the study of QOL has attracted the attention of researchers from a wide range of academic disciplines as well as interest among policy makers, planners, and others in the environmental design fields. The concept is certainly interdisciplinary and increasingly recognized as warranting interdisciplinary study.

This paper describes what is meant by QOL and those aspects of it that are of particular interest to environmental designers and environment-behaviour researchers. Those aspects are referred to as quality of urban life and encompass the places where people live, work, and play. Following a review of approaches for studying quality of urban life, a number of models are presented that have been used to guide the research. The importance of such models is then discussed as well as the opportunities they afford for conducting environment-behaviour research.

## **2. Quality of life and living environments**

Historically, many QOL studies have tended to examine objective indicators reflecting the human condition such as their employment data, the incidence of mortality and morbidity, and crime rates. These studies were launched during the social indicators movement in the 1970s and recently summarized by Robert Stimson and me in *Investigating Quality of Urban Life: Theory, Methods and Empirical Research* (Marans and Stimson, 2011). During the past half century, however, a handful of researchers from the environmental design professions and many more social scientists have argued that ‘quality’ of any entity has a subjective dimension that is perceptual as well as having an objective reality. In their comprehensive book on well-being, Kahneman, Deiner, and Schwartz (1999: p. x) indicate that the quality of life experience of individuals is embedded in the social and cultural context of the evaluator. The authors also suggest that the objective characteristics of society - such as poverty, crime rates and pollution - contribute predominately to peoples’ judgments of their lives. This assertion recognizes that QOL has both an objective and a subjective component and, as we will illustrate momentarily, requires an understanding of both components and relationships between them.

The quality of our lives has many dimensions including our families, our jobs, our financial situation, and as we age, our health. Those of us interested in the environment are well aware that we live in different places, each of which has numerous environmental attributes and these places are also important to our quality of life. We can think about places ranging in size or scale from the individual dwelling to the local area or neighbourhood, to the city, to the broader region, or even to the state or nation - and it has been documented that where people live will influence their lives and, therefore, their overall QOL (see for example, Marans and Kweon, 2011). As such, a fundamental assumption underlying many approaches to planning and design is that places may be designed to enhance the quality of people’s lives. As we noted, most people are expected to live in cities and metropolitan areas and therefore, it seems important to examine the relationships between the characteristics of these places and the perceived QOL

of the residents. These types of studies have been referred to as quality of urban life (QOUL) studies. (Marans and Stimson, 2011)

While social scientists have had a strong interest over a long period of time in investigating aspects of QOL, the intensity of interest, the approaches used, and the focus of their investigations have varied. But in recent times there has been an upsurge of interest in QOL research. The formation of the International Society for Quality-of-Life Studies (ISQOLS) is indicative of this emerging interest. ISQOLS holds annual conferences and in 2006 launched the journal *Applied Research in Quality of Life*. That journal deals with QOL studies in applied areas of the social and natural sciences, and it has the goal to:

“... help decision-makers apply performance measures and outcome assessment techniques based on concepts such as well-being, human satisfaction, human development, happiness, wellness and quality-of-life.”

That statement is indicative of breadth of concerns which might be related to the notion of QOL, it reinforces the ‘fuzziness’ of its meaning, and why it defies giving the term a universally accepted definition.

### 3. Approaches to QOL and QOUL research

As suggested above, there are two basic approaches to examining QOL and QOUL, particularly in the context of people who live in cities and metropolitan areas:

- The first has involved monitoring QOL/QOUL through a set of *indicators* - usually over time-derived from *aggregated spatial data* using official sources - such as the census - that are said to be related to perceived QOL/QOUL (for example, level of household income, crime rates, pollution levels, housing costs, and so-on).
- The second has involved modelling *relationships* between *characteristics of the urban environment* and measures of peoples’ *subjective assessments* of QOL domains, including their *satisfaction* with specific phenomena and with life as a whole. This approach typically involves data collected through survey research methods and analysed using techniques such as regression analysis or structural equation models.

Monitoring indicators over time can provide information on those aspects of QOL/QOUL that people see as improving or declining, while survey data can also provide information on individual and community level perceptions, subjective evaluations, and levels of satisfaction with various aspects of urban living. However, as pointed out by McCrea, Stimson and Western (2005), while those indicators are useful, they are also limited. That is because they cannot by themselves indicate the relative importance of the different attributes of urban living and environments that contribute to the level of satisfaction of individuals with urban living.

Even if a sample of residents living in a city were asked to rank in order of importance a list of items relating to QOL, the information thus gathered does not necessarily allow one to estimate the proportion of satisfaction explained by any one factor, nor the unique contribution of any one factor. Therefore, it is important to develop models to analyse the data and to test hypotheses about those relationships using methods to establish the relative and unique importance of various aspects of urban living in contributing to the QOL of various groups of residents. These methods could range from regression analysis to more sophisticated structural equation modelling techniques.

The complex relationships between the characteristics of urban environments at different scales and the satisfaction of the residents of a city with QOL domains is certainly difficult to model without a theoretical framework to guide the process. In addition to the complexities just discussed, Schwirian,

Nelson and Schwirian (1995) have identified an ‘urbanism’ construct which consists of four related dimensions, namely:

- demographic characteristics
- economic stress
- social stress
- Environmental stress.

The authors’ unique contribution is their suggestion that economic, social and environmental conditions in an urban setting create stressful situations or experiences for some of the people living there.

It might appear that it is difficult to incorporate such a complex set of factors within a single model. However, early in my career, Willard Rodgers and I proposed a model of satisfaction with residential environments that was adapted in Campbell, Converse and Rodgers (1976). The literature in QOL studies seems to most frequently cite the Campbell, et al. reference as providing an overarching model framework for the investigation of QOL which can readily incorporate a range of demographic, social, economic and environmental relationships, while taking into account satisfaction with different levels of living or domains of life (see Figure1).

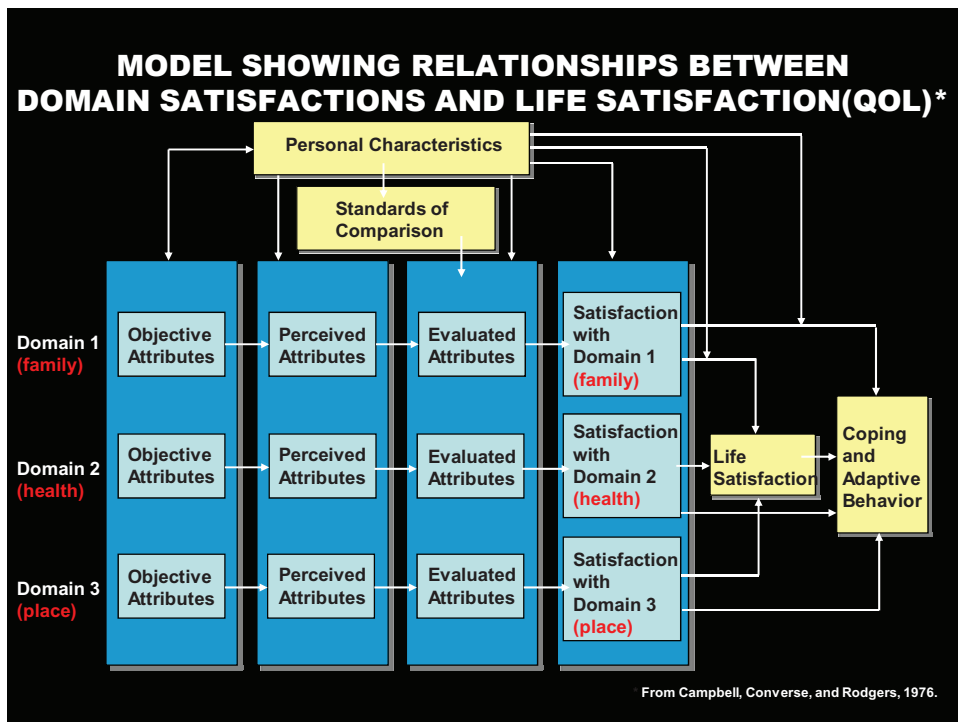


Fig. 1 Model showing relationships between domain satisfactions and life satisfaction (Source: Campbell, Converse, and Rodgers, 1976)

The model rested on the following four principles:

- The experiences of people are derived from their interactions with the associated objective attributes.
- The subjective experiences of people are different from the objective attributes.
- People respond to their experiences with the objection attributes
- The level of satisfaction in various life domains contributes to the overall QOL experience.

In essence the model specified a series of linkages between various objectives attributes of each life domain and satisfaction measures of those domains, which in turn could be influenced by a range of individual characteristics and individual standards of comparison.

The approach proposed by Campbell, et al. (1976) suggested that satisfaction with living could be viewed at multiple levels of analysis. As suggested by Marans and Rodgers (1975) that might include, for example:

- satisfaction with housing
- satisfaction with neighbourhood
- satisfaction with the community (or broader region).

This is a bottom-up model framework in which urban characteristics such as the actual amount of crime might influence perceptions of crime which, in turn, might contribute to satisfaction in a specific domain (for example, neighborhood satisfaction) . And neighborhood satisfaction, together with other domain satisfactions might influence to overall satisfaction with life. Paths could thus be mapped from economic, social and environmental characteristics of urban living to satisfaction with different living domains, and those paths are mostly between variables at the same level of analysis. However, the Campbell, et al. (1976) model did provide for relationships between the various QOL domains and geographic levels of urban scale to be analyzed.

### 3.1. *The importance of place*

As we suggested, there is considerable evidence to show that ‘place’ matters when it comes to QOL concerns, and studies focusing on QOUL enables us to better understand the meaning of QOL and how it might be measured (Marans 2002: p. 2). For example a number of my colleagues and I (Marans and Rodgers 1975; Lee and Marans 1980; Connerly and Marans 1985, 1988) have built on the seminal work by Campbell, et al. (1976) to explore the *objective-subjective relationships* in investigating QOUL, asserting that the quality of a place or the geographic setting at various *scales* (the region, the city as a whole, the neighbourhood, the dwelling) is in fact a subjective phenomenon, and that each person occupying that setting might differ in their views about it. Further, it has been suggested that those views would reflect each individual’s *perceptions* and *assessments* of a number of setting attributes that could in turn be influenced by certain characteristics of the occupant, including their *past experiences*. Those past experiences thus represent a set of standards against which current judgments are being made. Those judgments include other settings experienced by the resident of a place, and they also include their *aspirations*. Finally, it also has been asserted that those assessments and perceptions of setting attributes are associated with the place attributes themselves. Marans (2002) provides this example:

“... the degree to which a person feels crowded at home is expected to be related to some degree to the number of people in his household per room (i.e. housing unit density). At the neighbourhood level, assessment of air quality and family health (e.g. the incidence of asthma) are likely to be associated with air quality measures in the neighbourhood.” (pp. 1-2)

Marans and Rodgers (1975) had proposed a model depicting such relationships for different residential domains of urban environments and how those domains, together with other domains, contribute to QOUL (see Figure 2). There are, of course, assumptions underlying the model:

- One is that the *quality of the geographical or environmental setting* (the region, the city, the neighborhood, or the dwelling) cannot be captured through a single measure; rather, it requires measures of multiple attributes of the environmental setting in question. In as yet to be specified combination, it reflects the overall quality of the setting.
- Another is that quality is a *subjective phenomenon reflecting the life experiences* of the occupants of the setting. The objective conditions of the setting themselves do *not* convey the true quality of the setting; rather its quality is a reflection of the meaning of those conditions to the occupants.

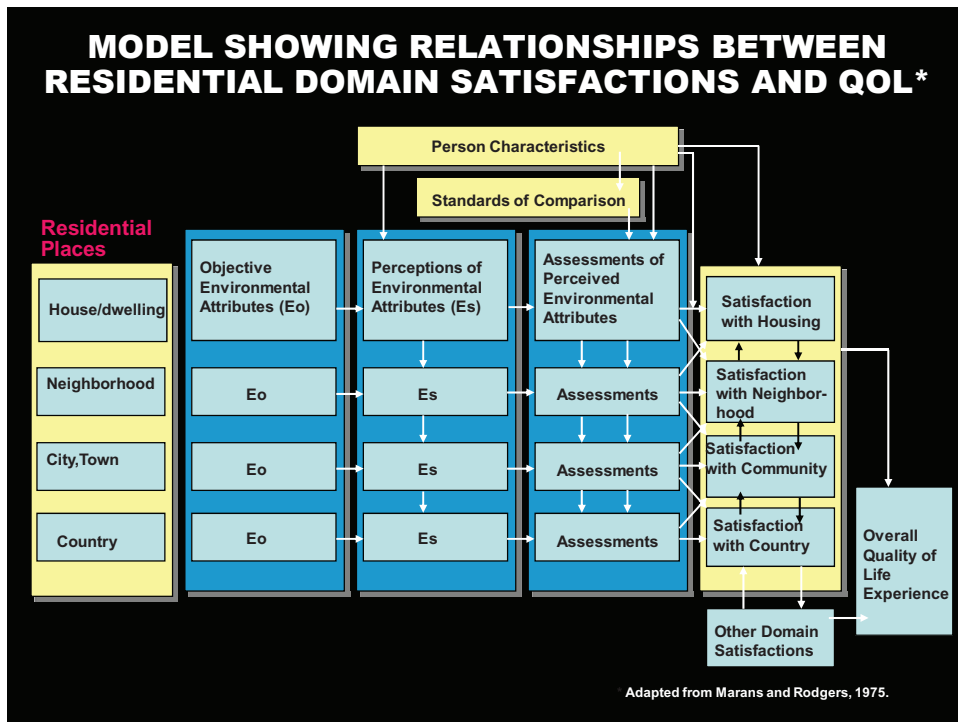


Fig. 2. Model showing the relationships between domain residential satisfaction and quality of life (Source: Marans & Rodgers, 1975)

More recently, Marans (2002) has elaborated on the model by showing the relationships that might account for people’s feelings about their neighbourhood (that is, ‘neighbourhood satisfaction’), as demonstrated in the example given in Figure.3.

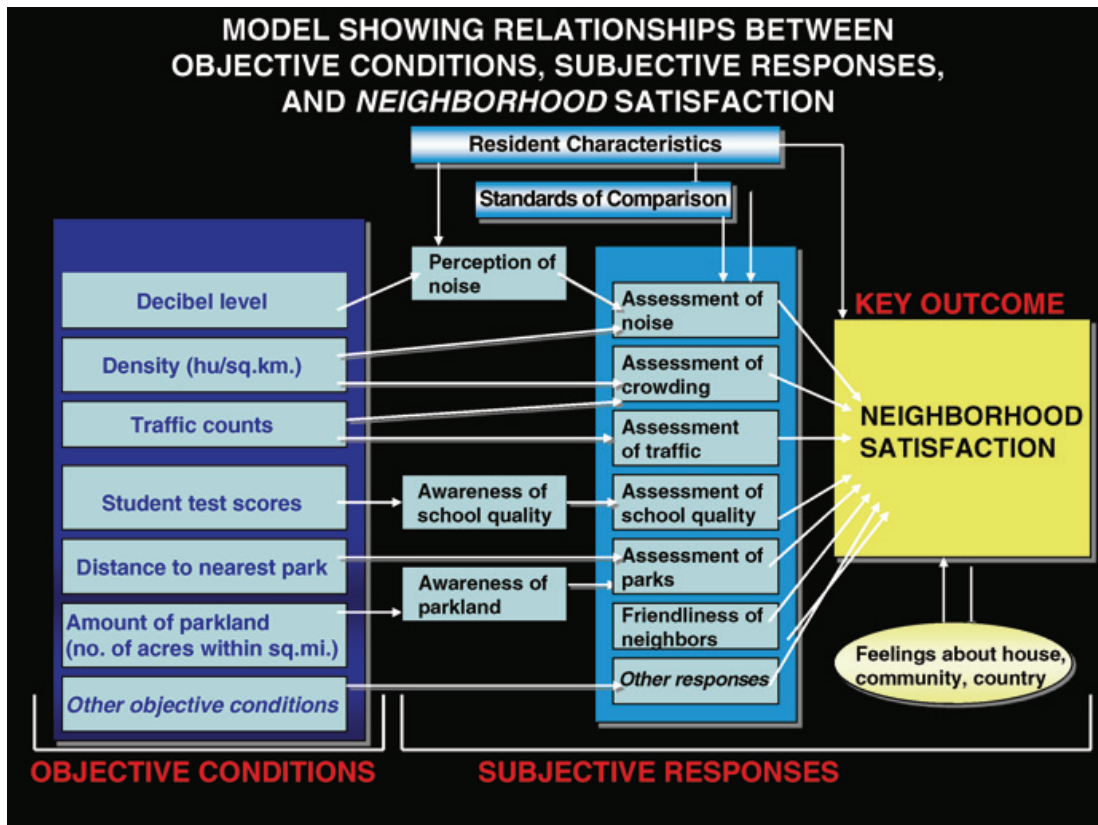


Fig. 3. Model showing the relationships between objective conditions, subjective responses and neighbourhood satisfaction (Source: Marans 2002)

As Marans (2002) stated:

“... Often, policy-makers want to know the most effective means of enhancing satisfaction. An important part of research therefore is determining the degree to which various objective conditions are associated with satisfaction. There is general agreement that satisfaction as an indicator of individual well-being is an important outcome in quality of life research. Nonetheless, there are other outcomes of importance to well-being that may be examined in quality of life studies. For instance, the physical health of individuals and the amount and type of physical activity they engage in are important to their overall well-being.” (p. 3)

It may be that in investigating QOUL, researchers might want to explicitly focus on outcomes additional to those indicated in Figure 2. By way of example, that might include the outcomes for people at the neighbourhood level and at the dwelling level that are listed in Table 1. Particular measures might be used to relate to an outcome on a particular domain, such as the items in italics that could relate to physical health outcomes.

Table 1. Additional outcomes at the neighbourhood and the dwelling level

Neighbourhood	Dwelling
Concern for safety Rating of school quality Public transit use Assessment of public transit Involvement in governance at a city level Amount of neighbouring Number of shopping trips Where children play <b>Number of park visits</b> <b>Amount of walking</b> <b>Number of visits to doctors</b>	Amount of leisure time spent at home Number of accidents Amount of time spent with children Time spent in housekeeping Time spent in home maintenance  <b>Airborne-related illnesses</b> <b>Number of meals at home</b>

Note: **Bold** items might be used as physical health-related outcomes

A further conceptual model proposed by Marans and Mohai (1991) suggests how health may be linked to a number of objective conditions associated with a set of leisure resources including environmental quality is illustrated in Figure 4. It showed that environmental and urban amenities are related community quality and individual activities, satisfactions, and physical health.

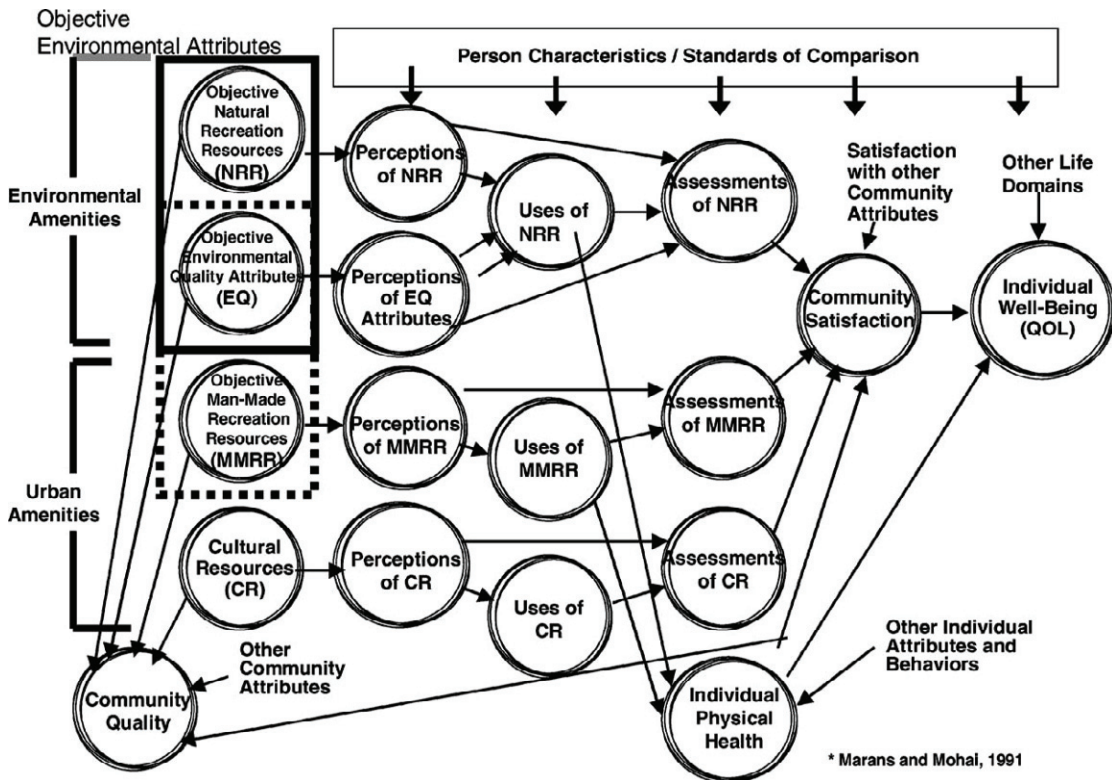


Fig. 4. Model linking recreation resources and activities to individual well-being, health and community quality (Source: Marans & Mohai (1991)).



Environmental amenities include two sets of attributes:

- Natural recreation resources (for example, rivers, lakes, wetlands, forests); and
  - The quality of the ambient environment (air, water, noise, solid and hazardous waste).
- Urban amenities also include two sets of attributes:
- Man-made recreational resources (swimming pools, cycle parts, walking trails, golf courses); and
  - Cultural resources (cinemas, concert halls, orchestras, museums, galleries, sports teams).

The model hypothesized that the perceptions or awareness of these environmental and urban amenities will influence peoples' evaluation and their use of them. And the model also suggested that in the case of the man-made recreational resources and the natural recreational resources, their use or non-use by an individual is associated with physical health.

Models such as that depicted in Figure 4 provide opportunities to explore numerous relationships including the role of recreational, environmental, and cultural resources in understanding QOL and in particular QOUL. Conceptualizing similar models can serve to guide data collection and analyses for other outcomes associated with QOL and with *quality of place*.

But the importance of relationships between urban characteristics and the perceived or subjective assessment of QOUL extends far beyond the satisfaction of individual residents with their living environments. Indeed, this has been the focus of much of the aggregate level analysis and modelling that had been conducted using spatial objective data. For instance, migration patterns are often attributed in part to QOUL considerations associated with particular cities or regions that may either be places from which people move or places to which people are attracted, and there is a rich regional science and geography literature that investigates migration flows using census data. Such models typically use as explanatory variables *place-related attributes*, including measures of local labour market characteristics (such as industry structure and wages) and urban amenities, which might include, for example, climate, the amount of public open space and the number of recreational facilities, museums and art galleries, sports teams, health services and facilities, and public transport characteristics.

### 3.2. *The benefits of developing conceptual models*

From the discussion so far it is evident that the relationship between QOL and urban environments is complex, and people's satisfaction with living in neighbourhoods, cities, metropolitan areas and even residential buildings is influenced by their personal characteristics, such as (individual or group) values, expectations, perceptions and evaluations, and their demographic and socio-economic characteristics. People vary in what they may consider to be important when judging their satisfaction with life in general and their QOUL in particular (Hsieh 2003), and different people might perceive things differently in the same situation or setting. The complexity of the relationships between urban characteristics and those subjective judgments or evaluations might help explain why much of the research to date finds that there is a low correlation between individual subjective evaluations and objective measures of QOL (see, for example, Warr 1987, 1999; Schwarz & Strack 1999).

The benefits of using the modelling approaches that have evolved from the original Campbell, et al. (1976) model are numerous, and have been summarized by McCrea, Western & Stimson (2011):

- Models are able to accommodate a large number of factors thought to influence levels of satisfaction with urban living as well as the personal characteristics of people.
- Models allow for the comparison of a number of different geographic levels of urban living. Including different levels of urban living in QOL models has been important because different planning, urban development and service provision policies may target different levels of urban living. When only one

level of analysis is incorporated into a model the results may be confounded because the other levels of analysis are not controlled (Gyourko & Tracey 1991). For example, relationships depicted in a model that are confirmed when analysing data covering an entire region may not hold up when analysing data for separate communities within that region. That is because of what geographers refer to as the ‘aggregation / disaggregation problem’ whereby greater clarity in terms of spatial differentiation in a phenomenon is more likely to be evident at a more disaggregated level of scale that will be the case at a more aggregated level of scale.

- In addition to incorporating different levels of urban living, models allow for characteristics of one particular satisfaction domain to contribute to satisfaction in another domain. For example, a public transport system may be a characteristic of a city and contribute to its overall quality but it may also influence neighbourhood satisfaction and people’s ability to move easily throughout a region.
- Finally, it is possible for the level of satisfaction in one domain to influence (or determine) satisfaction in other domains. For example, housing and neighbourhood satisfaction have been shown to predict community satisfaction. Such links between satisfaction domains are ‘spillover effects’ (Jeffres & Dobos 1995).

We might also add that models such as those depicted earlier help those of us trained as designers to think graphically about the complex set of relationships between the urban environment and its many attributes and the kinds of outcomes that policy-oriented and design-oriented researchers believe are important.

### 3.3. *The growing importance of Geographic Information Systems (GIS)*

Increasingly, Geographic Information Systems (GIS) technology is being used in social research including QOUL studies, and it is certain that this will become more common in the future. GIS technology has been employed widely by researchers in re-examining the entire issue of accessibility in urban environments to assess how overall proximity to diverse opportunities such as employment, education, shopping, health and recreation might directly affect something such as personal health (Witten et al. 2003). Studies have examined the relationships between health levels and urban lifestyles, assessing – among other things – how transportation infrastructure affects longevity (Handy et al. 2002; Boarnet et al. 2003).

But using GIS now permits the integration of survey data covering subjective QOUL at the level of the individual with spatial objective information about the urban environment. By geocoding the residential location of respondents to QOL surveys, it is possible to integrate:

- Survey-based information on individuals’ attitudes, preferences, behaviors and expectations with respect to QOL domains and of aspects of QOUL at different spatial scales.
- Spatial objective information on the demographic and socioeconomic characteristics of populations and of housing of local areas derived from census data.
- Spatially objective environmental data relating to land use, proximity to urban services and facilities and natural resources like parks, residential density, brownfield sites and noxious industry.
- Community data relating to schools, crime, health, taxes, and so forth

This integrative capability of GIS is conceptualized in Figure 5 and has been used in a number of QOUL studies recently, including my research that examined QOUL in metro Detroit. (See Marans & Kweon, 2011)

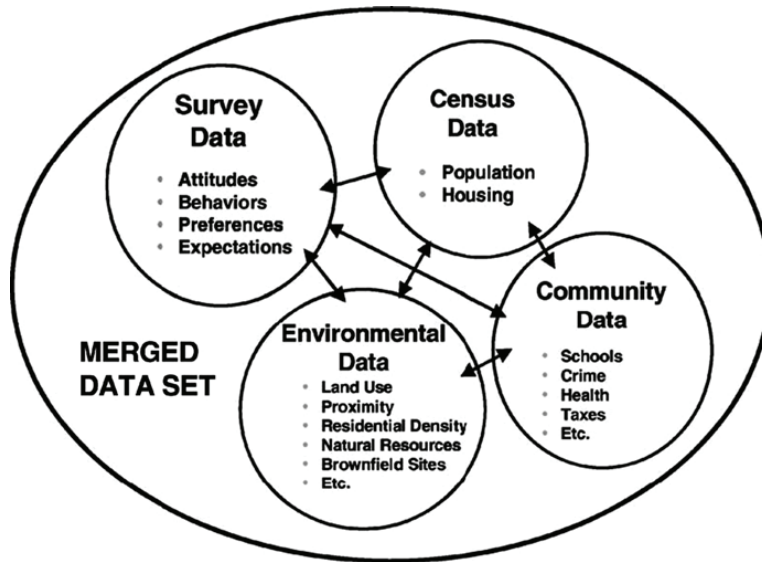


Fig. 5. Using GIS to integrate data sources to generate a merged data set (Source: Marans 2002 p. 7)

Data integration gives rise to the possibility of investigating various relationships between contextual data and responses to survey questions about QOL using bivariate analysis and multivariate statistical modelling. For example, an analysis might address a question such as how density (as reflected by multiple density measures) affects peoples' responses to crowding and noise, knowing the names of neighbours, and their interactions with them.

Elsewhere, I have suggested that this integrative capability is most useful to help researchers address issues that might have policy or design significance or be useful in helping us to address urban and environmental planning issues (Marans 2002). For example, the following questions might be addressed:

- Where do people live who feel negatively about their cities and their neighbourhoods?
- To what extent are police reports about crime associated with concerns about neighbourhood safety?
- To what extent is public transit use influenced with proximity to bus routes and bus stops?
- Do people living in mixed-use neighborhoods use public transit more and walk more than people living in neighbourhoods consisting of single family homes?
- Is there a relationship between access to parks and frequency of park visits?
- Is the presence or absence of sidewalks associated with the amount of walking that people do and their self-reports about their health?
- What physical and social attributes of neighborhoods if any, contribute to the degree to which residents feelings about "sense of community"?
- Are preferences for open space neighborhoods associated with feelings about urban sprawl, preservation of farmland, and natural resource conservation?
- Is the type of street network in a neighborhood associated with amount of automobile use?

### 3.4. Applications to environment-behaviour research

It should be clear that in each of the above set of questions, one or more environmental attributes (i.e. sidewalks, parks, bus stop locations, crime reports, etc.) are mentioned. At the same time, each question suggests an outcome (or outcomes) covering how people feel or what they do. The former are the objective conditions depicted in the models described earlier while the latter represent measures obtained from surveys which measure the thoughts, feelings, perceptions, and behaviours of urban residents. Such surveys are the primary mode of collecting data in the case studies presented in the Investigating Quality of Urban Life book. (Marans & Stimson, 2011). Some of the case studies measure objective conditions as well.

It should also be clear that the models described in this paper offer opportunities for conducting environment-behaviour research within the context of urban environments. Furthermore, this research has the potential of informing policy and plan making as well as the day-to-day operations taking place within cities. Similarly, the research findings could be made available to urban residents who, in democratic societies should have and often demand information about themselves, their cohorts, and their environments. These activities are summarized in Figure 6.

The figure has several components, all of which are inter-connected. Beginning on the left, it is suggested that urban environments (i.e. neighbourhoods, cities, metropolitan areas) are typically governed by (elected) policymakers and run by urban managers who operationalize or carry out policies set by policy makers. That is, the managers are responsible for the day-to-day operations and functioning of the urban environment. These policies and operations impact both the residents and the ways cities and their neighbourhoods are designed and/or function. On the right side of the figure, it is suggested that these impacts can be systematically measured by considering both the urban conditions and residents' responses to those conditions. For every urban environment, determining what conditions should be measured is an important task for the policy-oriented researcher along with determining the corresponding indicators that best reflect those conditions. Similarly, determining the types of resident responses is an equally important task. These responses typically cover the residents' perceptions, evaluations, and/or behaviours.

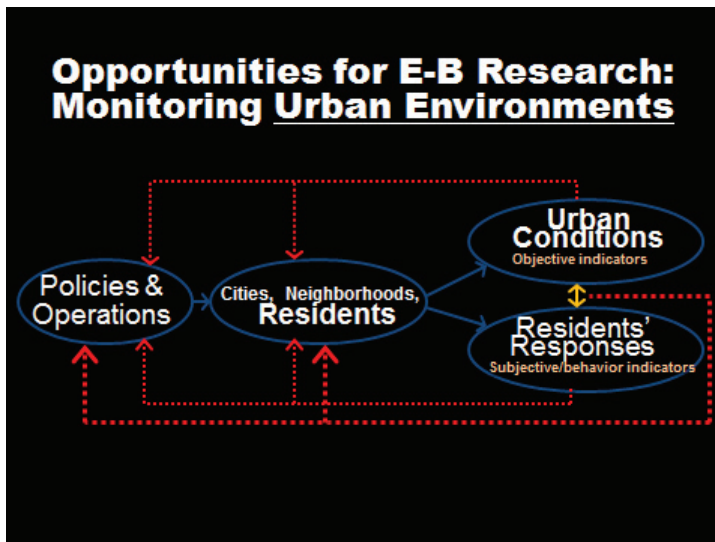


Fig. 6. Model showing relationships between E-B research and urban environments

It is the interactions (shown in yellow) between the urban conditions (as reflected by a set of objective indicators) and resident responses (as reflected by a set of subjective/behavioural indicators) that warrant study and present opportunities for E-B researchers. Finally the thick red line in the figure shows how indicator interactions (the E-B focus) are fed back to those responsible for policy and operations as well as to the residents; the thinner red lines imply feedback of the sets of objective indicators and subjective/behavioural indicators to policy makers, operations personnel, and residents.

Ideally, this process of measuring the indicators would be repeated periodically so that policy makers and planners would be able to assess how they are doing. That is, changes (or no change) in indicators would reveal the extent to which the urban environment and people's responses to it have been influenced by the decisions and actions of those involved in policy, planning, and managing the environment. How often indicators should be measured will vary from place to place and often depends on the scale of the urban environment. For instance, monitoring a particular neighbourhood in a city might require the collection of information every year or so and might involve the residents themselves in the collection on indicators. A large city or metropolitan area on the other hand, would collect indicator data every 5-6 years and would depend on interests of policy makers and resources available to collect and analyse the indicators.

#### 4. Summary

This paper has discussed the frequently used term, quality of life and focused on research dealing with the quality of urban life, a term of particular interest to environmental designers and environment-behaviour researchers. Urban life encompasses places where people live, work, and play and will become increasingly important as cities and metropolitan areas grow. Following a review of approaches used to study quality of urban life, a number of conceptual models have been presented and have guided previous studies. Characteristic of all the models is the inclusion of measures that capture attributes of the urban environment and measures that tap people's perceptions, evaluations, and/or behaviours. Finally, the paper reviews a process for conducting policy-relevant environment-behaviour research in the context of quality of urban life studies.

#### Acknowledgements

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