New Urbanism and Urban Design, Tools for Changing Behavioral Patterns of the Citizens

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Abstract

This paper reviews the importance of physical urban form and urban design in directing citizens' behavioral patterns. It is of great interest for new urbanism theoreticians. Due to growing internal travels in the cities, their environmental repercussions, reaching stable travel patterns and travel demands' management, urban design tools can be used in the neighborhoods of the city. Previous studies in this focus on the key roles of residential density, professional density, accessibility, physical design of the neighbourhood, and etc. Neighbourhood design in dense form with mixed applications and visual and space quality for walking can be effective in reducing car travels and the amount of crossed distance by the citizens. The extent to which physical design of the neighbourhood and urban design affects citizens' behavioral patterns is the concern of this paper.

Keywords: Urban design, citizens' behavioral patterns, urban space, new urbanism, behavioral patterns

INTRODUCTION

Over the last few decades, immense urban changes have occurred in many industrialized countries, including reduced population density in cities and increased sprawl of housing, resulting in the residential migration to suburban developments (Frank, 2000). In many cases, urban design has caused a population-level reliance on automobiles for daily travels, reduced accessibility to facilities (Estabrooks et al, 2003), and alterations of community perceptions and cohesion (Timperio et al, 2004). Concurrently, many countries are reporting low physical activity levels and increases in obesity prevalence. Although the link between the urban environment and health has been established, understanding the impact of built environment on physical activity behavior has been inadequately addressed by both the health and transport sectors. In 1990s, new urbanism movement introduced a new paradigm in evaluating the quality of urban areas. It includes criticizing modern urban constructions for increasing social interactions via redesigning urban spaces, streets, and public places, as well as physical direction of urban neighbourhood toward stable environments. New urbanism looks for creating dense areas in the villages and cities with mixed use in the neighbourhoods in human scale. So, increasing residential and professional density, mixing applications, and increasing

walking abilities are the priorities. Incrementing environmental concerns, daily lives' dependence on cars, and citizens' fewer interactions are the disadvantages of using personal cars which have afflicted metropolises cities. So, regarding new urbanism in planning neighbourhoods is a necessity. Some researchers have limited the range of the discussions to examining the correlation between designing neighbourhoods' structure and travel patterns i.e. selecting transportation ways of the residents, personal cars, public vehicles, bicycles, walking, and etc. Although some studies were done in this respect, the answers differed according to geographical location, social, and cultural conditions, creating new discussions in this field. Public believes about previous studies focus on the effective role of urban form and deign in travel patterns of the citizens. Reducing physical domain of the city, applications' mixture, and increasing the quality of artificial environments provide the backgrounds for leading citizens toward using public transportation rather than personal cars. So Its seems that The New Urbanism is a better way to plan and build 21st Century communities. Through the first quarter of the 20th century, the United States developed mainly in the form of compact, mixed-use neighborhoods. The pattern began to change with the emergence of modern architecture and zoning and the ascent of the automobile. After World War II, a new system of development was implemented nationwide one that, instead of being based on neighborhoods, was based on a rigorous separation of uses.

PROBLEM VIEW

Spreading new urban lifestyles after industrial revolution with its specific culture, this phenomenon found organization, creating new elements in adoption with spaces. Along with new culture, these elements have created different spaces in present world. Urban spaces and their culture are different with rural types. So, urban management should emphasize values, norms, and social manners proportional to the cultural environment of the city. The other element in this space is life style's type or urban economy emphasizing market, business, service formation, and industry. With the growth of social work divisions and forming different professional groups in the urban spaces, different cultural-social plans can be done for socialization and urban management. Urban life necessitates special cultural relations which differentiate it from rural style, create technical work spaces, discriminate residential and vocational domains, and yield sub-cultures (Fakoohi, 2004). From the other hand, socialization has enormously helped developing urban culture. It refers to the process in which the collection of human lives and activities are placed in the network of bilateral social dependences. Such trend is fulfilled by human interactions, stable interpersonal relations, and teaching urban life's regulations, and stabilizing social identity in the city. Socialization stems from many factors like wide human gatherings, technical requirements, life rationalization, and responsiveness to the increasing group needs by the governmental officials (Biro, 1996). This process in the city includes all the routine activities the humans should do to have social interactions. Urban space is a sociological reality whose players are correlated and urban management gives meaning to them through providing activities and cultural services. It also prepares social symbols, form, and systems and provides them for the citizens in the form of social-cultural goods directly or indirectly to develop material and spiritual growth of the citizens based on their cultural identity. Culture accompanies material and spiritual achievements for the citizens as a social and human reality. In this space, there are special behavioural patterns for the correlation of society's members which should be regarded by the citizens and be embedded in their life style. This dimension in human features reflects the importance of acquired behaviours in humans that discriminate his life from other creatures by which they meet their needs in the society. City is a centre for learning these behaviours during time which differs based on the cultural background of the citizens. Urban management should teach these acquirable behaviours in specific occasions. The content of these behavioural patterns like values, norms, rules of social codes, and citizens' culture has led to forming cultural identity. Cultural management of the urban domain should plan for the shortterm or long-term programs to improve acquired behaviours of the citizens directly or indirectly. Pre-World War II, cities were highly localized places that subsisted on the premise of low automobile ownership. The infrastructure that existed allowed daily requirements to be achieved within a comfortable walking distance, or with the combination of transit. Post-war economics led to increased disposable income and decentralization of cities to suburban centres and single land uses (Frank et al, 2003). As a result, automobiles are relied on for travelling the long inter-destination distances associated with suburban sprawl. Traffic congestion, singleoccupant automobile travel, increased pollution, rising infrastructure costs, and degeneration of communities have now become serious concerns for transport sectors in developed nations (Lavisso- Mourey and Mc Ginnis, 2003, Frank et al. 2003).

DISCUSSION

New Urbanism is a time-tested planning practice that incorporates interrelated patterns of land use, transportation, and urban form to create communities that foster the most desirable characteristics of human habitation: neighborliness, environmental sustainability, economic efficiency and prosperity, historic preservation, participation in civic processes, and human health. New Urbanism practices apply to all scales of community, from the region and neighborhood to the block and building.

Restrictive conventional zoning and subdivision regulations over the past 50 years have led to development patterns, particularly in the suburbs, that diminish these desirable characteristics of human habitation. Separated land uses and excessive traffic and parking provisions result in increasing air and water pollution, decreasing natural environments, lack of accessibility among children and the elderly, lengthening congestion and commuting time, rising public service costs, reduced civic involvement, and declining health.

The purpose of the New Urbanism Division is to provide planners, public officials, and other decision makers with the information, support, and tools needed to eliminate restrictive conventional development regulations and allow New Urbanism patterns to be incorporated in all communities.

Urban design involves the arrangement and design of buildings, public spaces, transport systems, services, and amenities. Urban design is the process of giving form, shape, and character to the groups of buildings, to the whole neighbourhoods, and the city. It is a framework that orders the elements into a network of streets, squares, and blocks. Urban design blends architecture, landscape architecture, and city planning together to make urban areas functional and attractive. Urban design draws together the many strands of place-making, environmental stewardship, social equity and economic viability into the creation of places with distinct beauty and identity. The primary concern of urban design has been with the physical form of the city and formation of possible urban environments. The main aim of the urban design is improving the quality of human spatial environment. Urban design is a bridge between the professions of urban planning and architecture. Urban design demands a good understanding of a wide range of subjects from physical geography to social science and an appreciation for disciplines, such as real estate development, urban economics, political economy and social theory. Public spaces are frequently subject to overlapping management responsibilities of multiple public agencies or authorities and the interests of nearby property owners, as well as the requirements of multiple and sometimes competing users. The design, construction and management of public spaces typically demands consultation and negotiation across a variety of spheres. Urban designers rarely have the degree of artistic liberty or control sometimes offered in design professions such as architecture. It also typically requires interdisciplinary input with balanced representation of

multiple fields including engineering, ecology, local history, and transport planning. Urban design considers:

- *Urban structure* – How a place is put together and how its parts relate to each other
- *Urban typology, density and sustainability* - spatial types and morphologies related to intensity of use, consumption of resources and production and maintenance of viable communities
- *Accessibility* – Providing ease, safety and choice when moving to and through places
- *Legibility and way finding* – Helping people to find their way around and understand how a place works
- *Animation* – Designing places to stimulate public activity
- *Function and fit* – Shaping places to support their varied intended uses
- *Complementary mixed uses* – Locating activities to allow constructive interaction between them
- *Character and meaning* – Recognizing and valuing the differences between one place and another
- *Order and incident* – Balancing consistency and variety in the urban environment in the interests of appreciating both
- *Continuity and change* – Locating people in time and place, including respect for heritage and support for contemporary culture
- *Civil society* – Making places where people are free to encounter each other as civic equals, an important component in building social capital

RESULTS

Previous studies have used 4 methods including comparison, simulation, structural equations, and logit modelling. Comparison method compares the structural plans and their descriptions. In simulation, the correctness of research hypotheses is confirmed via regression, factor or cluster analysis or other statistical tests. As Hindi (1996) mentions, output accuracy results from hypothesis reasonability. Another example is the study of Nali and Rayan (1993). Supposing samples with similar travel amount, the streets with grid layout lead to more passed distances and average travel rate. The methods of structural equation and logic modelling benefit from more theoretic and rational reasoning. They have gained more attentions in previous years. From the view of scale and viewing level, there are two categories: aggregate level, disaggregate level. The former regards urban elements of the structures in city scale. Messenger et al (1996) stated that selecting travel pattern not only depends on physical features of the neighbourhood, but also is affected by the area it occurs in it. From the other hand, disaggregate level impresses the structure of the neighbourhood and its inhabitants. Despite disputes over such divisions, analyzing mutual correlation between designing neighbourhood and travel pattern is complicated.

Based on previous discussions, the following factors were regarded
Residential density
Experimental evidences confirm the effects of residential density on travel pattern of the citizens. Transportation planners believe that establishing a stable system can't be fulfilled except by balancing residential density. Such belief was apparently resulted from who related traffic density and energy consumption to residential density. Some other studies suggest less significant effects for this factor in the analysis as a main variable (Messenger et al 1996).

Employment density
Despite being less effective than residential density, this factor is regarded in the analysis of city structure and travel pattern with great significance. The results of examining residents' commuting in central sections of the cities and workers' gatherings show the evident impact of this factor on travel pattern. Spatial distribution of employment can be studied in related studies as travel behavior stimulator.

Accessibility
Accessibility refers to the time and place closeness of a residential area to a specific activity. Accessibility has a basic role in transportation planning, regarded as the main factor in selecting travel parameters. So, acceptability of an urban plan from the view of transportation planning depends on facilitating behavioural patterns of citizens and decrease of travel demands.

Neighbourhood design
Previous studies confirm the significant role of neighbourhood design in identifying travel pattern of citizens. Especially, neo-traditional neighbourhoods have been able to encourage walking and decrease private vehicles. Although inevitable development of spaces for the activities outside neighbourhood borders increases travel demands, it doesn't reduce the importance of the details in neighbourhood design (Cervero, 1996). Neighbourhood design acts collaterally with some factors to help the ease and efficiency of public transport services and walking areas, although there are limitations for quantification and data gathering.

Mentioning two points about the correlation of physical form and travel pattern is necessary:

- City form, structural design, and land use create a framework for behavioural pattern of the human which includes the selection of work or living place, automobile ownership and travel/activity decisions. So, increasing residential density reduces passed distance by the vehicle.
- Different demand-supply actions exist in urban system collection. The effect of population number and residential density on public transport service and its correlation with the attractions of residential area with different population combinations is a part of interrelations of urban system which is mostly ignored in the related studies.

Auto Ownership
A common findings of previous studies shows that inhabitants of high-density areas are less willing to use automobiles; in return, they prefer public transport, decreasing travel length (Cervero 1997). In the study of North America, auto ownership variable is neglected in modelling travel demands. This point may reflect this fact that auto-ownership rate is high in urban areas of USA so it can't be a good index for comparison (Badoe et al 2000). From another view, auto-ownership is included in the frame of the variables representing social-economic status Cervero (1996) believes

that such views have underestimated the significant role of auto ownership since it is an intermediate variable between life/work place selection and next decisions for activity/travel place. The living and working families in low-density areas tend to the higher levels of auto-ownership and vice versa. Such close-to-reality analyses show the importance of regarding auto ownership as an independent variable.

Socio-economic features

It is clear that socio-economic variables like age, income, gender, job, and etc have significant effects on travel patterns/demands. Moreover, a reason for methodology tendency to disaggregate models and logit modelling in examining the correlation between physical form of the city and travel pattern is its capability for explaining personal features and preferences. The considerable point here is this that examining the relation between socio-economic variables and travel pattern/demands should be regarded in related modelling. Because, such features have undeniable roles in selecting life or work places. Ignoring such explicit relations in the analyses distracts the results. According to Badoe et al (2000), instead of asking about the priority of socio-economic variables or physical features of the neighbourhoods in directing behavioural patterns, a better question will be about the ways behavioural responses of the citizens will differ based on the physical changes of the form and design of the city, affected by socio-economic features.

Transit Supply

Few studies have regarded this variable in their analysis which is probably for their data limitations. From the other hand, the significant role of this variable is confirmed in identifying travel patterns and has led to decreasing description power of density variable (Cervero et al 1997). For more clarification, the demand-supply relation between the density and public transportation supply should be regarded. The higher the level and efficiency of public transportation, the larger population will use its services.

There is considerable enthusiasm among individuals in research, advocacy, and policy circles for the idea that "good" urban design will positively contribute to the levels of physical activity. The enthusiasm demonstrated by such perspectives is refreshing; it is critically important to support planning efforts that make physical activity and "active travel" easy, available and more attractive to a diverse and increased population. At the same time, it is important to be aware of the false expectations of such planning initiatives; particularly the potential of urban design, by itself, to strongly influence the levels of physical activity. The caution presented below warns us that the magnitude of the independent effect of urban design on physical activity may be less significant once other issues are accounted for.

The primary reason for this caution is guided by the theories of behavior from public health, informed by recent urban planning research on travel patterns. Public health colleagues provide us with highly disciplined models to guide our understanding of human behavior. A set of theories are referred to as social ecological models. An underlying theme of ecological models is that there is a variety of contexts — individual, interpersonal, organizational and community— that operate at multiple levels to influence action;then, a behavior does not occur within a vacuum.

Environmental contexts are particularly difficult to pin down because they invoke behavioral decision making in various levels. This draws attention to questioning how and in what manner our favorite urban designs relate to the multiplicity of human behavior.

Much of physical activity excitement approaches urban design as a relatively simple intervention operating in transparently. Providing pro-environment physical areas through good urban design will lead to increased physical activity. Analyzing a single policy or environmental change without fully capturing other important influences may lead to erranous conclusions and even overstate outcomes about that policy or environmental change. These premature conclusions hold particularly true for matters related to the places people decide to live and work, factors they consider in supportive urban design, and the ways they engage in active travel. How these dimensions relate to one another is more suggestive of a tightly spun web that incorporates many factors. Trying to unravel that web by isolating and pulling out the urban design thread is a particularly complex endeavor.

The battery of recent research examining relationships between urban form and household travel tell us with some certainty that the households in more urban and mixed use communities tend to walk, use transit, or bike more than their suburban counterparts; we know that when suburbanites drive, they are behind the wheel for longer distances than urbanites. This is encouraging news for planners and other environmentalists. But this research does little to inform us about the likely consequences resulting from building more urban and mixed use communities. Why? Because, in part, most of this research to date does not adequately rely on ecological theories of behavior and does not account for the complex manner in which urban design plays out.

A primary outcome of urban travel research suggests that there is a healthy dose (pun intended) of self-selection in these communities. Residents select locations to match their desire for walking, cycling or transit use to those places more conducive to such behavior. The same holds true for the families who move to a neighborhood where they have convenient access to a rail-trail or a walking path; this is an option they prefer to have. This suggests that differences in travel among households with different neighborhood designs should not be credited to the urban design alone; the differences should be attributed to self-selection. In other words, people who are likely to walk, choose to locate in a given neighborhood where they have a better chance of engaging in active travel. The behavior from habitual walkers magnifies the environmental effects. The effects of urban design versus other factors such as attitudes or choice of lifestyle need to be disentangled. These latter effects are myriad and important; but incorporating them into an analysis is complicated because they are so difficult to be measured. For this reason, these factors too often go not only undiscovered but also unacknowledged. Some factors may come in the form of what statisticians like to refer to as "latent" (or not directly observable) variables. These latent variables relate to the concepts such as how we learn our preferences about travel and/or neighborhoods (e.g., through school, through our parents), the influence of others on our residential decisions (e.g., neighborhood groups, image considerations), our sensitivity to other relevant public policies or services (e.g., schools) or the culmination of each

in the form of our overall lifestyle choice. Ecological models suggest that these other and larger factors are significant. The important point is that the relative magnitude of the independent effect of urban design on physical activity may become marginalized once these other factors are accounted for. Efforts to use urban design to induce unwilling autooriented, physically inactive households to be more active may be futile for at least two reasons. First, their auto-using behavior may be a function of their overall preference for auto-oriented behavior or certain built environments. These preferences are typically manifestations of the adults since they are driving (again, pun intended) forces behind decisions of neighborhoods and travel patterns, thereby often leaving out the choices or preferences of children. To twist a popular adage, "you can take the family out of the suburbs but you can't take reliance on the Chevy Suburban out of the family." Second, it is unlikely that physically inactive households would locate in neighborhoods that prize opportunities for physical activity. This in turn suggests that the success of the "physically active city" may be limited to the relatively small numbers of people who currently live in or would move to neighborhoods with "physically supportive" urban design. The new urbanists and others suggest that this population is sizable and there is considerable latent demand for such physically active neighborhoods. This may be the case but more evidence is needed. Necessary but not sufficient "Good" urban design is critically important to the overall health of our cities. A considerable population currently lives in the environments that simply do not provide attractive options for active travel. We intuitively know that people have a harder time walking or cycling where opportunities for these options do not exist. Reconciling these instances should be a top priority by creating and enhancing environments where individuals have choices for different modes of travel. Doing so certainly does not undermine other planning objectives by expanding their choice of travel mode. But while improved conditions may be necessary, they are not sufficient for households to adopt healthy lifestyles. Other factors have equaled if not greater importance and thus the "healthy" inquiry into more complex causal links lives on. The effects of such improvements will not be dramatic; so, it is important that we do not overreach our expectations of such interventions. Rather, it suggests that aspiring for the healthy city is a complex phenomenon. To better know the myriad ways in which urban design plays out, requires a fuller understanding of how urban design relates to basic preferences learned behavior, and lifestyles.

This knowledge will allow policy makers to promote initiatives that will have a long-lasting effect and create healthier preferences and behaviors. A more thorough understanding will therefore assist policy makers to construct better informed policies about our built environment.

CONCLUSION

This paper reviews the importance of physical form of the city and urban design in directing behavioural patterns of the citizens ; this is of great interest for new urbanism theoreticians. Due to the increasing travels inside the cities, environmental concerns in metropolises, reaching stable travel patterns, and managing travel demands, urban design tools in neighbourhoods should be used. Although studies in this respect have some deficiencies, they emphasize the role

of key factors like residential density, accessibility, physical design of the neighbourhood and etc. Neighbourhood design in dense form with combined uses and visual/ space quality for walking can affect reducing travels with personal cars and passed distances. Nowadays, walking areas are one of the most important urban areas which are considered as human scale index; they increase dynamism and social interactions with various uses for free time, play ground, green space, shopping which duplicates their attractions. In this way, for their multidimensional features, walking areas are regarded as the most economical and accessible urban places, developing more than before. Nowadays, such areas are also the indices of urban development and competitiveness of the cities for attracting tourists, helping economic growth. Jean Jacobs regards sidewalks as the arthritic vein of the cities which have been introduced as public tribune. They have their own special, social, and physical structures. In different countries, many attempts have been made in different levels of urban planning to encourage and facilitate movements in sidewalks for which governmental sections' and municipalities' share is of great importance. Many cities are willing to provide plans and development perspectives in different time scales in 21st century.

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