

ORDER DISORDER IN ENVIRONMENTAL QUALITY MEASUREMENTS

Dafna Fisher Gewirtzman

Density measurements are conventional tools for space utilization and manipulation. All current density measurements are ratios between dwelling units (or the number of people) per area unit. A two dimension numerical density measurements can not reflect the spatial notion of the perceived density, and for that reason are deficient in its ability to indicate level of environmental quality.

We suggest a new conceptual approach to comparative evaluation of urban environments. This comparative evaluation relates to the extent of openness (degree of transparency or opaqueness) of spatial environmental parameters, such as close and distant view, natural light, sound, ventilation or privacy, characterized by 3-D geometrical-morphological relations.

The spatial openness can be a comparative indicator for environmental quality in all hierarchical levels; from the dwelling unit, through the building compound and the whole urban environment. As the urban environment is defined by the spatial organization (composition and interrelation) of the built volumes, there is a great dependence between the spatial openness on all hierarchical levels. Spatial openness on one level would reflect the integral spatial openness of all lower levels. This approach defines the hierarchical order of the evaluation method.

Comparative evaluation of openness can be discussed on every hierarchy level of the urban space, and that, in pure geometrical-morphological terms. But life and human environmental perception is more complex than that. It refers to attractiveness or repulsion in which various features play a significant role, such as meaning, texture, color, smell, degradation or quality of buildings, nostalgia, memory and more physical and psychological aspects. These aspects introduce distortion and disorder into our system. Disorder reflects better the real world of the complex urban systems.

The paper describes an effort to develop a new conceptual approach and a method to 3 -D density measurements and evaluation. This approach reflects the hierarchical order which is found in the urban environment, and at the same time its disorder-the deviation from pure geometrical consideration, The target of this approach is to facilitate a reliable method for environmental quality evaluation, thus offering the basis of which an important urban planning and design tool can be constructed.