

# DEVELOPMENT OF AN ALTERNATIVE UNIT PLAN BASED ON IDEAL FLOORPLANS DRAWINGS OF CONSUMERS

Yeun Sook Lee, Yonsei University  
Sun Mi Lee, Kwangju Women's University

Until recently, it was common for construction companies to focus only on the quantity of housing in Korea. Uniformly mass-produced apartments had caused frequent mobility as well as unplanned renovation (Kim, 1993). The recent rapid development of new apartment complexes however has had a significant impact on the consumers' ability to choose preferred residential interior environments. Moreover, an increase in remodeling of uniformly mass-produced apartments has also had an overwhelming effect on consumer taste. As a result, housing construction companies in a competitive housing market have become eager to satisfy these changing consumer demands. In addition, many researchers and construction companies are considering new methodological developments that are more in touch with residents' needs. If we consider a) the significance of the housing interior as an everyday living setting, and b) the lack of mental environmental image research about micro-level spaces, it becomes easy to see how a development of a mental map analysis method might be worthwhile.

The purpose of this research was to scrutinize the characteristics of user needs and to suggest useful concepts in housing development by using housewives' mental drawings of an ideal apartment, and then to develop an alternative unit plan based on the results to show how the research can actually be implemented.

Content analysis was used as the method of this research. The data were mental maps, that is, floor plans, drawn by housewives. The mental map is a kind of paper-and-pencil test in environmental psychology, which shows a person's experience and needs by drawing. Compared to the questionnaire and interview, this relatively new technique can be used very effectively to identify user needs.

Data were provided by a housing construction company that held nationwide competitions every year for housewives. Participants were recruited through advertisements using various mass-media outlets, such as daily newspapers and popular magazines. Of the total 3,012 floor plans, 2,215 floor plans were selected by the Proportional Stratified Random Sampling Method. Two hundred thirteen selected variables were used to analyze the floorplans. They consisted of residents' characteristics, presentational characteristics of mental maps, design preference characteristics, such as layout, composition, furnishing, and aesthetic and traditional aspects. The analyzing instrument was developed through three reliability tests.

Taking into consideration contemporary and historical trends, the results of user needs were divided into two parts: one to describe present trends and the other to predict future trends. The conclusions are as follows:

1) Assuming that popular characteristics represent current housing culture, there was a demand for more rooms that could accommodate various functions. South-facing houses were still preferred, but in a decreasing proportion. Bedrooms were preferred to be located at both sides of, or scattered around, the central public space. The practicality of housing functions was emphasized, as well as gardens in the interior space.

2) Future housing trends were identified as follows: They showed a tendency for openness by expanding the verandah for active and visual use. Also there was a tendency to emphasize the number of bathrooms; that is, to separate the facilities by function. Traditional aspects of older housing designs, such as main entrance door type, garden, aquarium, floor materials, and seating style arrangement were also pursued. Progressive and diverse design features appeared more often in the facades than the interiors.

3) If the mission of housing construction companies is to satisfy user needs, some results of this study will be valuable sources for the companies' future housing development plans. These include additional rooms, more kitchen and bathroom space, and various ways to achieve a sense of spaciousness, effective functioning, while still respecting tradition. Mental map data and content-analysis techniques as a means to access user needs and housing norms in current Korean society, can be a significant research tool.

Since the floor plans gave information about what users wanted for their interiors, the results are expected to be used to develop user-oriented unit designs for mass-produced apartments. To give more practical and specific information, data were further analyzed according to house size, which floor plan characteristics largely depend on. Four popular apartment size ranges were selected: small- (app. 850 ft<sup>2</sup>), lower middle- (app. 1200 ft<sup>2</sup>), upper middle- (app. 1700 ft<sup>2</sup>), and large-size (app. 2500 ft<sup>2</sup>). Data were sorted by house size to give a clearer picture of the residents and their preferences. On the basis of house size analysis, checklists for relevant design concepts, and guidelines for new alternatives were generated. As a result, four prototype floor plans were developed.

Since the design concepts used here were innovative compared with ones found in existing plans, it was necessary to simulate the interior environment to give a clearer picture, communicate with relevant decision makers more effectively, and help them make decisions in more easily. Computer-simulated 3D Images were generated to lead to active communication; residential interior study benefited from simulated 3-dimensional space imaging.

## References

- Downs, R. M. & Stea, D. (1973), *Image and environment: cognitive mapping and spatial behavior*. Chicago; Aldine Publishing co.
- Gould, P. R. (1966), On mental map: discussion paper 9, in: *Michigan Inter-University Community of Mathematical Geographers*, Ann Arbor; University of Michigan Press.
- Im, S. B. (1986), *Environmental psychology and behavior*, Seoul; Bosung Publishing Co. (Written in Korean).
- Kim, Y. J. (1993), Study on the presentation of housing identity of residents in apartment. Ph. D. Dissertation, Yonsei University, (Written in Korean).
- Lynch, K. (1960), *The image of city*, Cambridge; MA, MIT Press.
- McGiunness, D. & Sparks, J. (1983), Cognitive style and cognitive maps: sex, differences in representations of a familiar terrain. in *Journal of mental Imagery*, 7(2), 91-100.