

Maslow's Human Basic Needs in the Residential Environment

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Maslow's theory (1970) is important to understand the substantial structure of human basic needs. One of the question raised in his theory is, however, whether the theory can be applied to the environmental context. In this study, Maslow's theory is both theoretically and empirically investigated in the context of the housing environment. This study specially seeks to examine the relationship between residents' housing satisfaction and the human needs defined by Maslow. A modified structured interview form was used as the procedure of data gathering in six large-scale multi-family housing developments. Factor analysis was utilized to develop appropriate conceptual indices. Based upon the indices, the hypothesized model of this study was developed, and tested by path analysis. The results of model testing showed several interesting findings : 1) all six issues originated from Maslow's theory were strongly related to residents' housing satisfaction, suggesting a high possibility to apply the theory to the environmental context, 2) the needs in the residential environment, however, would not be organized into the independent hierarchy, as suggested by Maslow, but the causally dependent hierarchy, 3) and residential attachment is found to be a possible need to be added to Maslow's basic needs in the residential environment.

Maslow (1970), in his well-known theory of human need hierarchy, indicated that there are seven basic human needs : the physiological need (e.g., hunger), the safety needs, the social relation needs (e.g., belongingness and love), the prestige needs (e.g., self-esteem), the need for self-actualization, the cognitive or knowing needs, and the aesthetic needs. He also argued that the basic human needs are organized into a hierarchy of relative prepotency where the physiological needs are the most dominant among the

needs. According to him, if the physiological needs are fairly well gratified, there then emerges the set of needs, e.g., the safety needs, and then the social relation needs, and so on.

Similarly, Levy-Leboyer (1978), cited by Cantor and Rees (1982), suggested that the three major needs of having a full social life (as the social relation need), secure personal space (as the safety need), and environmental comfort (as the physiological need) play a major role in the life of young men. While they took a broader perspective

(i.e., human life) than the physical environment (i.e., the housing environment), and they did not clearly discuss the human's basic needs in terms of the provided environment to the human; nonetheless, inferences based upon their discussion would suggest the importance of examining these issues in the context of the environment. From their point of view, it is possible to assert that the person would be satisfied with the environment only if the fulfillment of his needs is promised in the given environment. This argument also indicates that the evaluation of the performance of the environment should be based on whether the environment can provide criteria that satisfy the person's basic needs.

Residents' housing satisfaction, as a theoretical construct, has been an important criterion in evaluating the performance of not only the physical, but also social and behavioral aspects of housing environments (e.g., Campbell, Converse, and Rodgers, 1976; Francescato, Weidemann, Anderson, and Chenoweth, 1979; Weidemann, Anderson, and Chin, 1989). Residents' housing satisfaction, as a global representation of the affective response of people to the social-physical environment in which they live, has also been a useful predictor of larger domains, such as life satisfaction (e.g., Hempel and Tucker, 1979), quality of life (e.g., Campbell et al., 1976), and sense of well-being (e.g., Andrews and Withey, 1976; McAuley and Offerle, 1983; Scheid and Windley, 1983). A specific concern with the concept of residents' housing satisfaction has been raised by many authors (e.g., Campbell et al., 1976; Galster and Hesser, 1981; and Galster, 1987). Campbell et al. (1976) stated that satisfaction could be precisely defined as the perceived discrepancy between aspiration and achievement, ranging from the perception of fulfillment to that of deprivation. Galster (1987), and Galster and Hesser (1981) also indicated that achievement

could be people's perception of salient attributes of their actual environment (both social and physical) and that aspiration could be viewed as standards defined by what people believe they may reasonably expect to achieve. The aspiration or standards in their terms does not seem much conceptually different from the needs defined by Maslow. Therefore, in the same manner, residents' housing satisfaction, can be described as perceived discrepancy between residents' perception of the physical attributes of the housing environment and the residents' needs.

The main interest of this study lies in investigating the human basic needs raised by Maslow in the context of the housing environment. This study specially seeks to examine the relationship between the Maslow's needs and residents' housing satisfaction, using path model. Since residents' housing satisfaction is viewed as being influenced by the fulfillment of the set of the residents' needs related to the housing environment, each of the fulfillment of the basic needs is considered as a possible predictor of residents' housing satisfaction in this study.

ISSUES

One of the difficulties dealing with Maslow's theory in the housing environment was how we operationally measure each of the human needs and its fulfillment. In this study, based upon Maslow's theory, six issues were considered as the operational definitions of the needs for the empirical test of this study: environmental comfort/convenience, safety, satisfaction with neighbors, prestige, satisfaction with visual appearance, and residential attachment. Residents' satisfaction with visual appearance of the housing environment was considered to be an issue related to the residents' aesthetic need. It is also considered that environmental comfort or convenience-related

issues (e.g., dwelling convenience and outdoor convenience) are originated from the residents' physiological needs. Among the Maslow's seven needs, the self-actualization needs and the cognitive or knowing needs were not considered in this study, since it is believed that they may not be related to the context of the housing environment. For example, the self-actualization needs seem to be related to the office environment; on the other hand, the knowing need is more likely related to the learning environment, such as schools or institutions. Instead of the two needs, residents' perception of residential attachment is included as the issue related to another need that can be added to the Maslow's needs in the context of the housing environment.

The following discussion is devoted to empirical evidences of these issues found in existing research.

Satisfaction with Visual Appearance

As the issue related to the aesthetic need, residents' satisfaction with visual appearance of the housing environment has been increasingly important research topic. The studies by Allport and Vernon (1931), Gurin, Veroff, and Feld (1960), and Dalkey (1972) have frequently shown the importance of visual aspects of the housing environment in residents' evaluation of their overall housing environment. Enosh, Leslau, and Shacham (1984), in their public housing study in Israel, found that the issues related to residents' affective responses toward visual appearance of their development (e.g., beauty, attractiveness, and cleanliness) were significant direct and indirect sources of residents' satisfaction with their overall living environment (e.g., neighborhood satisfaction).

Although housing preference is considered to be different from housing satisfaction, Widmar (1984) showed that residents' satisfaction with the

visual aspects and the design of the apartment buildings themselves had a strong and consistent relationship with preferences for multi-family housing.

Satisfaction with Neighbors

Previous studies have also often indicated that various aspects of residents' needs for social relation (e.g., satisfaction with neighbors) are related to residents' housing or neighborhood satisfaction (e.g., Gans, 1961; Yancy, 1971; Fried and Gleicher, 1961; and Chin, 1988), or general sense of well-being (e.g., Connerly and Marans, 1985). Fried and Gleicher (1961) were the first to indicate the strong relationship between residents' perceived social relations and their residential satisfaction. They emphasized the importance of residents' feelings of psychological closeness to their neighbors (i.e., satisfaction with neighbors) as a source of residents' positive attitudes toward their housing environment (i.e., residents' housing satisfaction) in the urban slum. Also, Yancy (1971) concluded, in a study of Pruitt-Igo, St. Louis, that one of the reasons for the failure of Pruitt-Igo was the lack of neighborhood cohesion and social order, associated with dissatisfaction with neighbors.

Perceived safety

The importance of safety to residents' housing satisfaction has also been frequently reported. Marans (1979), Weidemann et al. (1989), and Lawton and Yeffe (1980) have continuously reported a direct and strong relationship between residents' housing satisfaction and their perceived safety from crime. Even earlier, Wilson (1968) concluded, in his study of Boston, that issues related to safety from crime (e.g., violence, perception of crime rate, and "immorality") were more important than other conventional problems (e.g., poor maintenance level), in determining

how people evaluate their neighborhoods. Confirming Wilson's finding, Lee(1981) also reported a strong link between residents' perceived safety from crime related issues(e.g., perceived crime rate or inadequate police protection) and satisfaction with their neighborhoods. For instance, he found that perception of local crime and inadequate police protection were negatively related to neighborhood satisfaction. He also found that the negative relationship between safety from crime and neighborhood satisfaction was strongest for unmarried persons and the poor.

Prestige

Other research(e.g., Enosh, et al., 1984) have examined the issue of prestige need in the context of housing. Enosh et al. found that residents' perception of prestige, that is, respect or esteem that the residents have from the neighborhood or other residents played a significant role as an intermediate variable between residents' neighborhood satisfaction and other specific attributes of the housing environment(e.g., beauty). Among the empirical tests in the five different neighborhoods, they also found that four of them showed direct effects of prestige on residents' neighborhood satisfaction.

Furthermore, they indicated that prestige, as a criterion, could be also significantly predicted by several variables, such as, safety and aesthetic aspects of the neighborhood.

Residential Attachment

Residential attachment is residents' perception of how strongly being attached to their residential environment, i.e., feeling their dwelling as 'home' or feeling their housing development as 'home village'. From the review of the existing research, it was recognized that only a few studies (e.g., Fried, 1982) reported the significant effect of residents' perception of residential attachment

on residents' housing satisfaction. Fried(1982) discussed that residential attachment could be the most closely related to residents' housing or neighborhood satisfaction.

Environmental Comfort/Convenience

Similar to residential attachment, the issue of the physiological needs(e.g., environmental comfort) has not been extensively examined in the existing literature of housing research. Instead, many studies have investigated the relationship between the objective measures of housing attributes(i.e., dwelling size, building height, housing plan, kitchen type, etc.) and residents' housing satisfaction. However, Chin, Weidemann and Anderson(1991) and Kim(1988) argued that these studies neglected to examine appropriate intervening variables(e.g., the issues of environment comfort) between the two. They showed empirically the importance of the issues of environmental issues as intervening variables that mediate the effects of the objective housing attributes to residents' housing satisfaction.

In this study, the issue of environmental comfort was divided into two specific issues, dwelling convenience and outdoor convenience.

METHODS

Setting

From an investigation of existing data about possible housing developments in Korea and various(about 11) site visits, six large-scale housing developments were initially considered based on the following criteria of whether information about various housing attributes of the housing developments was available, and if the housing developments were large and diverse enough for sampling to generally represent the physical characteristics of the housing environment. Among the six large-scale housing developments, groups of

buildings were chosen which had a relatively small range in dwelling size (e.g., between 66 m² (20 pyung³) and 99 m² (30 pyung)) and number of bedrooms (e.g., 2 or 3), for the purpose of controlling the range of residents' income.¹

Resident Interview

From among the set of subjective measures, this study used structured self-reports from residents about various perceptions of, and satisfaction with their housing environment. Most interview items were from the Occupant Satisfaction and Perception Survey developed by Francescato et al. (1979) and other relevant research, and they were intended to measure each of the concepts mentioned previously. All items were translated into Korean; they were examined for accuracy of translation by 3 Korean students at University of Illinois at Urbana-Champaign, who are quite familiar with both Korean and English. Revisions were made as appropriate.

All subjective items, except for two items related to general life satisfaction and housing satisfaction, were measured on a five point scale with the mid-point of "I don't know"; the most negative response being scored as "1" and the most positive scored as "5". The item of life satisfaction, "In general, how satisfied are you with your life as a whole these days?", and the item of housing satisfaction, "After considering all of these issues mentioned above, how satisfied are you with living here, in general?", were measured on a seven-point scale with the mid-point of "Neither satisfied nor dissatisfied".

As the interview procedure, the modified structured interview form was used in the procedure of data gathering. Recent studies in Korea have reported that certain survey techniques, such as mail surveys, may not be the most appropriate methods to get high response rates from residents. Twelve interviewers, all female college students,

were to visit the selected housing units with the forms and answer sheets, to show the forms to the residents, and to record the residents' answers on the answer sheet. For the purpose of pretesting the interview items, a pilot interview was also conducted. From the results of the pilot interview of 12 housing units, a number of redundant and obscure items were revised or dropped from the interview.

Using the revised structured interview forms, which contained 132 items², the 12 interviewers contacted the housing units to be sampled over a 5 and 1/2 day period during the summer of 1989. Among the sample buildings in the six housing developments, a total of 646 housing units were interviewed. It was found that most interviews were usable; few had missing responses. The interview response rate varied from site to site, with an average of 39%. While some residents refused to be interviewed, most of non-interviewed units were the result of no one being home at the time the interviewer visited the unit.

RESULTS

Development of Indices

As the beginning step of path model testing, the indices to serve as operational measures of the constructs of interest in this study were developed based on factor analyses of the items. One of the first steps of factor analysis is the selection of the number of factors to be extracted. In this study, both Kaiser's criterion (1961) and the skree test (Child, 1970) were considered in the decision of the number of factors. Following both the skree test and Kaiser's criterion, this study's analysis initially suggested three possible factor solutions (20, 34 and 41 factors from the skree test, and 41 factors from Kaiser's criterion). As the next step of factor analysis, both an orthogonal varimax rotation and oblique rotation were utilized for all

Table 1. Indices and Interview Items Used in This Study

Indices/Issues	Interview Items
Dwelling Convenience	v17 ; I think the housing plan of my home is not comfortable. v22 ; The housing facilities(kitchen, bathroom, toilet, etc.) are convenient to use.
Outdoor Convenience	v28 ; The outdoor space in this housing development is appropriate for talking, sitting, or resting. v29 ; I often use the outdoor sitting area in good weather.
Safety	v76 ; After considering above safety issues, my family and I are safe in this housing development.
Satisfaction with Visual Appearance	v105 ; In general, I am satisfied with the visual appearance of this housing development.
Satisfaction with Neighbors emergency	v88 ; I could get help from my neighbors in an emergency. v89 ; I am satisfied with most of my neighbors in this development, in general.
Prestige	v12 ; I am proud of my apartment(or house). v13 ; A person visiting this housing development would think that this is a nice place to live.
Residential Attachment	v32 ; I feel 'my home' in my apartment. v33 ; I feel 'home village' in this housing development.

these possibilities. It was found that the 41 factor solution using a varimax rotation was the most appropriate, since the factors more clearly matched the hypothesized concepts and had fewer variables with multiple loadings.

Based upon the results of the factor analysis, a total of 52 indices (specifically, 22 indices and 30 single item factors)³ were selected for further analysis, as the potential predictors of residents' housing satisfaction. Some factors were divided into two or more indices for conceptual clarity. Each of indices were created by combining the items which had factor loading scores greater than .40. Specifically, the indices were developed by adding the scores on the highly correlated items together, and dividing the sum by the number of items to give a single score corresponding to the scale of the original items. In the case of missing

data, only item with data were used in the calculation of the index score. Among 52 indices, Table 1 shows the indices and the interview items used in this study.

Similar to the previous research (e.g., Francescato et al, 1979 ; Chin et al., 1991), the index of residents' housing satisfaction was created by combining four correlated items in this study. The items were : "How long do you want to continue living here ? ", "If you move again, would you like to live in another place like this ? ", "Would you recommend this place to one of your relatives (or friends) if they were looking for a place to live ? ", and "After considering all of these issues mentioned above, how satisfied are you with living here, in general ? ". The four items were omitted from main factor analysis, since it was to be the final criterion ; however, when they were

also included in an initial factor analysis with all other items, the four items were found to be in the same factor. Furthermore, the reliability as evaluated by Cronbach's alpha (1951) was .65.

Model Testing

Predictors of residents' housing satisfaction

Figure 1 shows the empirical model obtained by

path analysis. The empirical model shown in Figure 1 is the abstract version of the original model testing using all 52 indices⁴, which, however, still keeps the all information of the original model but shows only the variables of the interest of this study. One of the basic analytical assumptions underlying model testing was that the effective way to control other related independent

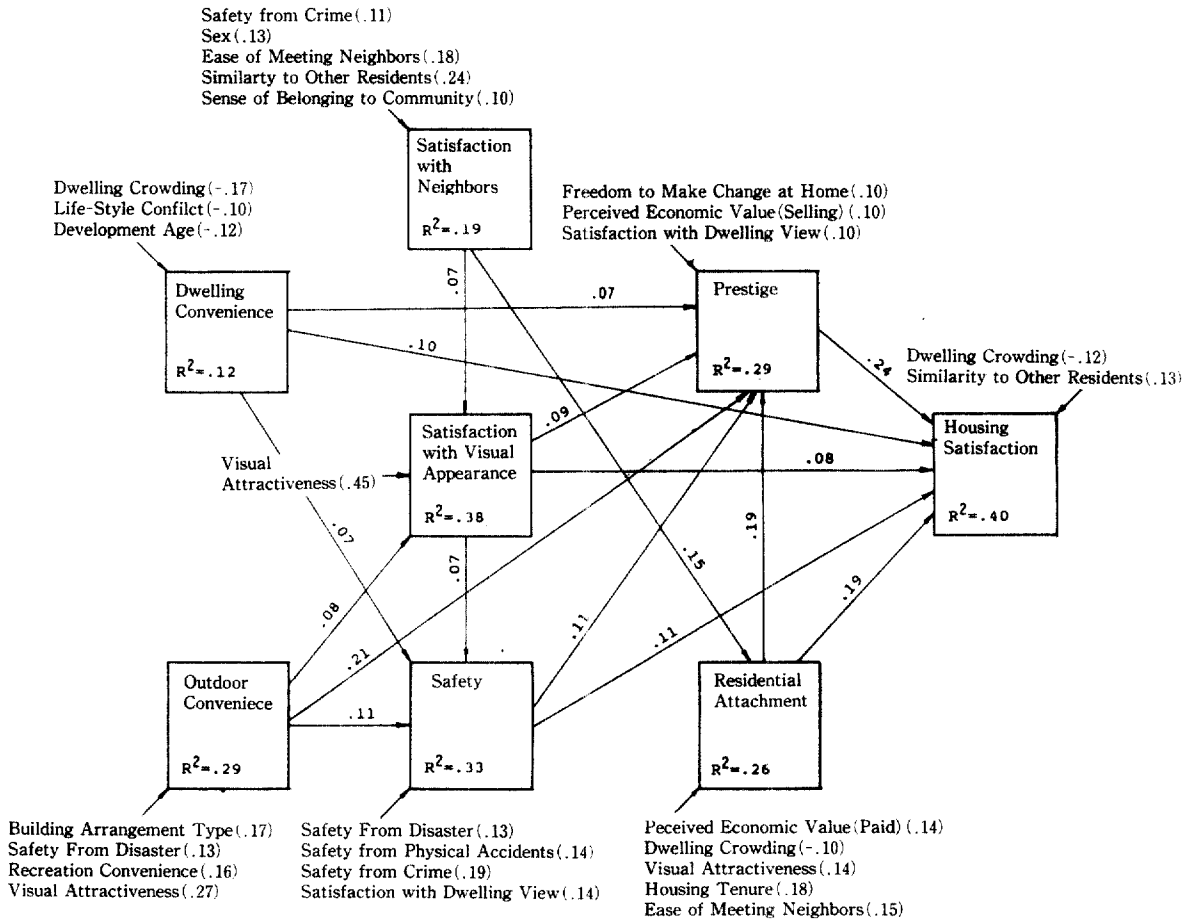


Figure 1. The Empirically Derived Model

Note. The paths/arrows in the figure represent predictors significant at $p < .05$ level. The values of R^2 indicates the variance of the criterion variable predicted by all significant predictors. The numbers shown above the paths are path coefficients (beta weights). As discussed in the text, this figure is an abstract version of the original model testing, for the simplicity of the figure; the originally derived model was much more complicated than this figure, showing the paths between all 52 indices (refer Chin, 1990). In this figure, the predictors that are not relevant to this study still show their names and beta weights that are greater than .10 in parentheses, instead of their paths.

variables and to reduce the error variance in regression analysis would be to measure all relevant variables and put enter in model testing.

Supporting Maslow's theory and the hypothesis of this study, safety, prestige, residential attachment, satisfaction with visual appearance, and one of the environmental comfort issues, dwelling convenience were found to be direct predictors. All showed a positive direct effect on housing satisfaction, of which prestige was the strongest single predictor of housing satisfaction ($\beta = .24$). Thus, we can say that the residents who felt safer, were more satisfied with the visual appearance of their housing development, felt higher prestige, felt more strongly attached to their living environment, and were more satisfied with dwelling convenience of their home, were then more likely to be satisfied with their housing environment.

While they were not direct predictors of housing satisfaction, outdoor convenience and satisfaction with neighbors also clearly demonstrated their indirect effects on housing satisfaction via appropriate intervening variables. In terms of residents' perceived outdoor convenience, as the paths between the related variables indicate, it was the direct predictor of safety and prestige that were both direct predictors of housing satisfaction. We can say that, therefore, the residents who felt that the outdoor area in their housing development are more convenient were more likely to feel higher prestige and to feel safer; hence, in turn, they were more likely to be satisfied with their housing. In terms of residents' satisfaction with their neighbors, it was the direct predictor of residential attachment that was also a direct predictor of housing satisfaction. This means that the residents who were more satisfied with their neighbors were more likely to feel that they were strongly attached to their home or their housing development; thus, eventually, they were more

likely to be satisfied with their housing environment via enhanced perception of residential attachment.

Effects of the variables on residents' housing satisfaction

One of the advantage of path analysis is that it enables one to measure the direct and indirect effects that one variable has upon another. Table 2 shows the direct, indirect, and total effect of the variables on residents' housing satisfaction. The total effect is the sum of direct and indirect effects of each variables on residents' housing satisfaction.

As shown in Table 2, among seven variables, prestige and residential attachment were found to have the strongest effects on residents' housing satisfaction; their total effects on housing satisfaction were both .24. The variable, dwelling convenience, whose total effect was .17, had the second strongest effect on housing satisfaction. Outdoor convenience, safety, satisfaction with visual appearance were the third strongest variables; their total effects on housing satisfaction were all .14. Satisfaction with neighbors was, however, shown to have relatively the weakest effect among the variables; whose total effect was .08. It should be also noted that, however, the sum of the total effects of each of the two convenience-related variables, e.g., dwelling convenience (total effect = .17), and outdoor convenience (total effect = .14) was .31 that was much stronger than that of prestige and residential attachment. This might suggest that the environmental comfort/convenience issues would be more dominant than other issues.

Table 2. Effects of Predictors on Residents' housing Satisfaction Indirect

Variables	Direct ¹⁾	Indirect		Total ⁴⁾
		Shown in the Figure ²⁾	Not Shown in the Figure ³⁾	
Dwelling Convenience	.10	.03	.037	.17
Outdoor Convenience		.064	.074	.14
Safety	.11	.03		.14
Satisfaction with Visual Appearance	.08	.031	.030	.14
Satisfaction with Neighbors		.04	.043	.08
Prestige	.24			.24
Residential Attachment	.19	.046		.24

¹⁾ The direct effect is the influence of one variable on another, that is unmediated by any other variables in a model. Its value is exactly identical to the path coefficient in a recursive causal system.

²⁾ These indirect effects were calculated as the product of two or more path coefficients(beta weights in this study) shown in the relevant paths of the figure.

³⁾ These indirect effects were calculated from the paths of the original model testing ; but they are not shown in the figure.

⁴⁾ The total effect is the sum of the direct effect and all indirect effects.

DISCUSSION

Overall

From the results of the model testing, all six issues based upon Maslow's human need theory were strongly related to residents' housing satisfaction, supporting the hypothesis in this study. Furthermore, it was found that they showed stronger effects on residents' housing satisfaction than other remained variables which were included in the original model testing, but their paths were not shown in the Figure 1 for the simplicity. This suggests that the residents' satisfaction with their overall housing environment is strongly related to how much their basic needs defined by Maslow are fulfilled in their housing environment, or how much their housing environment can provide them with opportunity to fulfill their basic needs. This also indicates that even though Maslow did not

clearly mention to examine his theory in the environmental context, his human need theory can and should be applied in the context of the environment. While his theory was investigated only within the residential environment, the further examination of his theory in other environmental context (i.e., office environment) should also be needed.

The Hierarchy of Needs

In terms of the order of the importance among the basic needs, the results also supported Maslow's theory, showing that the sum of the total effects of the two convenience issues related to the physiological needs on residents' housing satisfaction was greater than that of the issues related to other needs. Next to the physiological needs, it was also found that, however, the issues of prestige needs and attachment needs (e.g., residential attachment) were the next and were stronger than

the safety need and/or the social relation need. This might indicate that the hierarchy among the needs, as suggested in Maslow's theory, may not be clearly applied in the environmental context, and may have a different order.

One of the interesting findings of this study had to do with the causal relationships between the needs. Maslow presented that the basic needs are in the order of the importance, arguing that the basic needs are not causally dependent each other. He stated that after one need was gratified, then the other need would emerge following the hierarchy of the needs. He did not point out that, however, the fulfillment of one need can possibly influence the fulfillment of the other needs, which means that there is a causal relationship between the needs, as found in this study. The results of this study indicated that, for example, the fulfillment of the prestige needs was influenced by the fulfillment of the physiological needs (e.g., outdoor convenience) and/or the safety needs, which means that the needs may not be independent each other but be causally dependent each other. The hierarchy of the importance of each of the needs and the causal relationship between the needs, if any, should be further investigated in future research.

Other Substantive Issues

Compared to the other issues related to the needs, the effect of the issue related to the social relation need (e.g., satisfaction with neighbors) on residents' housing satisfaction was found to be slightly weaker than the other issues, which does not strongly support Gans(1961) and Fried and Gleicher(1962)'s argument. One of the possible explanation is that the social relation need in middle-income housing environment in this study is not as much important to the residents as in the low-income housing environment in Gans and Fried and Gleicher's study.

Another special notion should be given to the importance of residents' perception of residential attachment on residents' housing satisfaction. Not similar to other issues, residential attachment was not from Maslow's basic needs ; however, its strong effect on resident housing satisfaction was clearly demonstrated in this study. It means that, probably, residents' need of feeling attached to their home could be one of the possible needs to be added into Maslow's basic needs in the context of housing. The further theoretical and empirical investigation of possible basic human needs is needed in future research.

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NOTES

1. For more information in detail about the selected housing developments, refer Chin (1989).
2. A full version of the interview form with 132 items used in this study is shown in Chin (1989), pp141-174.
3. The results of the 41 factor solution containing items and all 52 indices are also shown in detail in Chin (1989).
4. The results of the original model testing with all 52 indices are well discussed in Chin (1989), and Chin et al. (1991).

주거환경에서의 Maslow의 인간기본욕구

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Maslow(1970)는 인간의 기본적 욕구체계를 이해하는데 있어서 중요한 이론적 틀을 제시한다. 그러나 Maslow의 인간기본 욕구 이론에는 인간의 기본욕구들이 환경적인 맥락(environmental context)에서 어떻게 이해되어야 하는지에 대한 고려가 담겨있지 않다. 본 연구는 Maslow의 기본욕구들이 환경적인 맥락에서 재조명되어야 할 필요성을 강조하며, 또한 구체적으로 주거환경(housing environment) 내에서의 Maslow의 욕구들이 주거환경의 평가지표인 주거만족(residents' housing satisfaction)과 갖는 인과적 관련도를 증명적으로 토의한다. 한국의 6개 대단위 공동주택단지가 본 연구의 대상지로 선정되었고, 표본추출시 건물유형과 건물배치유형을 고려한 다단계표집방법(multistage sampling)이 사용되었다. 설문면담 방법(modified structured interview form)에 의해 646명의 처리가능한 응답이 수거되었다. 인과모형검증의 첫 단계로서 다수의 설문 문항을 원래 관심있는 소수의 변수로 정선, 추출하기위한 방법으로 요인분석(factor analysis)이 사용되었다. 요인분석으로부터 정선된 변수를 이용해서 본 연구의 가설 모형이 정립되고, 그 모형을 검증하기 위한 방법으로 경로분석(path analysis)이 사용되었다. 검증결과를 요약해 볼 때, 1) Maslow의 6개 욕구 변수들 모두가 거주자의 주거만족과 유의한 관련도를 보임으로서, Maslow의 욕구이론이 환경적인 맥락에서도 응용될 가능성을 강하게 시사하고 있으나, 2) 욕구들간의 상호체제는 Maslow가 제시하고 있는 것처럼 독자적인 위계(independent hierarchy)가 아니라 인과적인 종속위계(causally dependent hierarchy)로 구성되어 있음과, 3) 또한 Maslow의 기본 욕구들에 추가될 수 있는 욕구로서 주거 밀착욕구(residential attachment)의 중요성을 본 연구의 결과는 보여주고 있다.