

The Comparison of The Kitchen Space Reflected on the Rural Living and Social Concerns

- Missouri State, U. S and Chonbuk Province, South Korea -

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I. INTRODUCTION

The house was built by the people and their personal life is contained in that space. People often referred to the house as a socio-cultural determinant. Since the development of technology and knowledge, the lives and shelters of human beings have changed. In the house, the kitchen was a primary space and was more complicated than other areas to accommodate many appliances and facilities. This has affected the design of the kitchen, and the space of the kitchen has been changed as a result of social and technological advancements. This trend on the kitchen space was shown in the article American Rural Area and the Korean Rural Area(Ryou & Choi, 1997). The 1st analysis, studying the remodeling and desirable changes of the rural kitchen space in Missouri, suggested that the tenants needed the kitchen to be larger with more storage spaces and a wider workspace. According to Yoon, Rhee and Hong(1994), the needs of the tenant could be classified as 'improvement' so that the quality of the present kitchen space is better through the change of its size and its arrangement, including the 'maintenance', since the social and physical life at the present kitchen space took longer through the repair and replacement of its materials and facilities.

The analysis of the tenants' needs on remodeling depicted a changing trend on the rural kitchen space, but as not enough to determine the differences of the rural kitchen design from those in the city. The 1st analysis did not present a cross-cultural comparison of the kitchen area. Therefore, this study was to examine the special features and adequate designs of the rural kitchen, the kitchen design for the handicapped, in recycling, and the users' evaluation on the kitchen, including a comparison of the two cultures : the American and the Korean rural kitchen spaces. Also, the researchers explored the differences between two countries in terms of rural living which influenced the design of the kitchen.

II. METHODS

This study continued to observe the needs of the tenant in the kitchen area in

Missouri, and the study of American rural kitchen space used the same research methods which were used in the prior study¹⁾. In other words, the data were collected from a mail questionnaire survey and the number of residents totalled 104 rural residents²⁾ selected from communities in the state of Missouri. Also, the handicapped and the recycling efforts on the kitchen³⁾ was examined. This was undertaken because these reflected the social changes and concerns that influence the design of the kitchen.

The pilot study of the Korean rural kitchen space in Chonbuk province, was conducted by the field survey method. This province was famous for being the food basket of Korea and many people work in the field of agriculture. This area was accessible to researchers. The researchers visited 37 rural homes⁴⁾ that were randomly selected from the suburban region in Chonbuk province, and interviewed the residents from the eighth through the thirteenth of July, 1999. The questionnaire for the interview was prepared to focus on the special features and adequate design of the rural kitchen, social concerns affecting the design of the kitchen, and the users' evaluation on the kitchen. It was organized in a simple manner because respondents tended to refrain from participating in the survey. The data were qualitatively analyzed.

III. RURAL LIVING AND THE DESIGN OF THE KITCHEN

The different needs for kitchen between a rural area and a city were examined, and determined their design characteristics. Because the residents were in a rural area, they believed their kitchen needed to have some special features and different design qualities.

1. The special features of a rural kitchen

Regarding the results on the needs for the special features of a rural kitchen, 39.4% of the American respondents indicated that the rural kitchen differed from a city<see table 1>. The most needed special feature was the 'freezer'(65.9% of the respondents). Particularly, 'a large freezer' is needed in the rural kitchen. Most

1) Ryou, O. S., Choi, B. S.(1997). Users' Need for the Kitchen Space in Missouri, U. S. Housing Research Journal 8(1). 87-96.

2) We sent 180 questionnaires to the rural residents, and received 104 questionnaires. The ratio of return was about 57.8%.

3) When we examined and explored the rural kitchen in 1991, the new design factors of the kitchen were environmental concerns, technological developments, accessibility and its universal design. So this study examined an environmental concern(recycling and the kitchen) and its universal design(handicapped and the kitchen).

4) The background of respondents in the State of Missouri, U. S were presented to a prior study. The respondents in Chonbuk, Korea had the following background. Their age was distinguished as follows : 24.3%, 40-49years, 24.3%, 50-59 years, 32.4%, 60-69years 8.1%, and over 70 years 10.8%. Their educational experience as follows : no experience 10.8%, graduated from elementary school 10.8%, graduated from middle school 37.8%, graduated from high school 35.1% and graduated from college or above 5.4%. Their yearly income, bellow 1000manwon 22.9%, 1000-1500manwon 48.6%, 1500-2000manwon 17.1%, and over 2000manwon 11.4%. The living period of their house was distributed as follows : bellow 5years 21.6%, 6-10years 21.6%, 11-15 years 13.5%, 16-20 years 13.5%, 21-15 years 10.8%, 26-30 years 8.15% and over 30 years 10.8%.

commonly, the freezer was set up in a basement⁵⁾, a porch, a utility room and so on. Another feature was the pantry⁶⁾, which provided storage space for extra food and canned goods(24.4% of the respondents). Two respondents suggested a built-in pantry was a very distinct characteristic. Other remarks included a wide counter for working(2 respondents) and simply a large and spacious area(3 respondents).

In the Korean study, 54.1% of the respondents indicated that the rural kitchen differed from a city<see table 1>. They said that the special feature was 'a secondary kitchen'(65.0% of the respondents), and the space linked between the Madang and the kitchen. They needed it for making Kimchi and preparing family events. The results matched those to the previous study in the dissertation of Ryou(1989), and remarked a similar tendency to the large spaciousness in the rural kitchen of American respondents. Another special feature in the Korean study was the self-supply of gas and water because the infrastructure in the rural area was not accommodating(10.0% of the respondents). Also, 25.0% of the respondents mentioned that the space was not clean and was not equipped with a dining table and a lighting fixture for a proper atmosphere.

< table 1 > The needs for the special features of a rural kitchen

| The State of Missouri in the U. S | Chonbuk Province in Korea |
|---|---|
| ① a freezer(65.9%) <ul style="list-style-type: none"> • large or medium freezer • the freezer is set up in a basement, a kitchen, a porch, a utility room ② a pantry(24.4%) <ul style="list-style-type: none"> • in order to keep extra food and canned goods • the pantry is set up as another storage space near the kitchen • a built-in pantry with sliding shelves ③ large facilities, and appliances and space(17.1%) <ul style="list-style-type: none"> • a wide work counter and sink • more space related to a kitchen in the city • large kitchen space because of a farming community and for preparing large meals. | ① a secondary kitchen(65.0%) <ul style="list-style-type: none"> • outdoor water supply in Madang • equipped with an outdoor sink and range • equipped with a large iron pot and a stove • the function for making Kimchi, soy source and bean paste, preparing family events, washing vegetables and keeping special tableware ② a large kitchen space (5.0%) <ul style="list-style-type: none"> • in order to prepare family events ③ self-supply infrastructure and food (10.0%) <ul style="list-style-type: none"> • underground water and LPG • cultivate food ④ other(25.0%) <ul style="list-style-type: none"> • the kitchen space is not clean, rural people are very busy • not equipped with a dining table and proper lighting |

2. The adequate design of the rural kitchen

Concerning the adequate design for a rural kitchen, 51.9% of the American respondents described their opinions in the questionnaire. Through a qualitative analysis on their thoughts, the most important factor was the ease and convenience to work in the rural kitchen(50.0% of the respondents), and the secondary factor was a large kitchen space(31.5% of the respondents).

5) In the pilot study, the researchers visited 12 rural homes in Missouri and interviewed the residents by using field survey methods. most of the housing types visited semi-basement and two-story homes. The basement space was used as a living space, in which old things were stored, a freezer was put, and sometimes it connected to the garage area for the car.

6) On the first analysis, 4 houses were improved by establishing a pantry after 1987. The pantry is a storage facility for many canned products and instant foods. Because the rural area is located far from the city, residents went to the market once a month and bought many things.

To interpret the American users' opinions, related to the design of the kitchen, the first factor of design was convenience, particularly the convenience for making meals, because the kitchen space stands as the center of work for the family. For convenience, they needed storage space as well as the easy ways of cleaning the area. This need of storage was same to the results of its special features, the 'freezer and pantry'. The second factor was the spaciousness and openness of the kitchen, and the central location within the house plan. In other words, residents wanted the rural kitchen to be large and open in order to serve as a family living area.

Also, 78.4% of the Korean respondents expressed their opinion concerning the adequate design of the kitchen. They wanted the design to be equipped with electrical appliances(58.6% of the respondents), and the results differed from that of the American kitchen. Particularly, due to the Korean traditional food life, a refrigerator for Kimchi was needed to be added. A large refrigerator for keeping food during family events, and for storing soy source and bean paste as well. Korean residents needed a dining kitchen type(34.5% of the respondents) and a design for convenience, including a Dalak(a Korean attic space for storage). These needs were similar to those of the Americans.

Through these findings, the researchers could maintain that the design needs of the American rural kitchen were different from those in Korea, because its physical structure and the food habits were different in both countries. 24.3% of the Korean kitchens⁷⁾ were not a western style. Therefore, the needs for the kitchen in Korean respondents concentrated on the fact that the electrical appliances were not used in the past, rather than the convenience and spaciousness based on the experiences of the western kitchen style.

IV. SOCIETY AND THE DESIGN OF THE KITCHEN

1. Recycling efforts

Among American respondents, 58.7% made an effort to recycle in their rural home. The recycling items were glass(90.2%), paper(83.6%) and aluminum cans(11.5%). They collected the recycling items such as glass and paper, and changed them in for cash at the supermarket. To analyze the relationship between

7) The observation data for a Korean rural kitchen can be analyzed into 3 types : a western style, a Korean traditional style, and a combination of the western and Korean traditional style. The western style is equipped with a sink, worktables, cabinets and a dining table in a kitchen(75.7% of the homes), and is similar to the American Kitchen style. The Korean traditional style is equipped with a Budumak : a Korean traditional worktable with a fuel hole. The material of the kitchen floor is soil or a cement mortar, and its floor level is lower than the interior space(2.7% of the homes). The combination of both the western and Korean traditional style is equipped with a sink, worktables and cabinet with Budumak in a kitchen((21.67% of the homes).

recycling efforts and housing space, 33.7% of the respondents answered that the accommodated space for collecting the recycling items was provided in the house. In addition, 60.0% of the respondents made the effort within the kitchen⁸⁾, and 40.0% of the respondents did so in other spaces such as the garage, the basement or the utility room. About 66.3% of the respondents mentioned that their houses did not allow for any extra space for collecting recycling items, because an appropriate place in the kitchen was not provided. However, at the time of survey most houses did not accommodate for any recycling space. Occasionally, one respondent collected aluminum cans. Also, another respondent was preparing to design a recycling space in their house, while another needed the collecting area for a community.

The recycling efforts in the Korean rural homes were examined, 97.3% of the respondents themselves conducted the efforts. This study analyzed the recycling items and how to recycle them and found that the relationship between recycling efforts and housing space disagreed with those in America. The American recycling efforts was conducted in the indoor space of the home, but for the Koreans, it was conducted in the outdoor space of the home or the public space in the community. The Korean recycling items were glass(80.6%), aluminum cans(75.0%), paper(69.4%), vinyl or PET(58.3%), plastics(47.2%) and food(33.3%)<see table 2>.

<table 2> The recycling efforts in Korean rural homes

| items | how to treat and recycle and treat | % |
|--------------------------|---|----------------------|
| glass (80.6%) | <ul style="list-style-type: none"> • collecting separately and carried away by a garbage truck • selling to a secondhand dealer | 75.9 24.1 |
| aluminum cans (75.0%) | <ul style="list-style-type: none"> • collecting separately and carried away by a garbage truck • selling to a secondhand dealer | 85.2 14.8 |
| paper (69.4%) | <ul style="list-style-type: none"> • burn in the Madang area or a fixed place in the community • collection | 76.0 24.0 |
| vinyl/PET (58.3%) | <ul style="list-style-type: none"> • collecting separately and carried away by a garbage truck • use a water bottle or give it to a proper individual • burn it like paper | 47.6 19.1 33.3 |
| plastics (47.2%) | <ul style="list-style-type: none"> • collecting separately and carried away by a garbage truck • selling to a secondhand dealer | 88.2 11.8 |
| food (33.3%) | <ul style="list-style-type: none"> • use as feed or fertilizer • collecting separately and carried away by a garbage truck/burn or bury them underground | 75.0 25.0 |

In Korea, rural residents applied the same recycling to glass, aluminum cans and plastics, and the same treatment for wastes. Recycling items and wastes were temporarily put outdoors : in a barn, under the eaves and corner of the Madang, and residents put these things in a public wastebin in a fixed place of the community. A garbage truck, registered in the provincial government, picked up these items once a week. Also, the residents received a monetary deposit for recycling the items to a secondhand dealer, and received some monetary benefit as

8) Concretely, the American rural kitchen accommodates waste treatment in the manner : equipped with a collecting box on the street corner(6 homes), a separate waste basket(4 homes), a pantry beside the kitchen(2 homes), equipped with a compressor(1 home) and a short reclamation(1 home).

they do in America. They burnt paper or vinyl in the Madang area or a public fixed place of the community, and the researchers could find their shortage of dioxin. In the case of PET, they used as a water bottle, and food remainders were used as feed or fertilizer.

2. Handicap accessibility

Society has seen an increase in the handicapped and the elderly, and so the accessibility of the handicapped was examined in this study. 22.1% of the American respondents, in reference to their kitchen, answered that the handicapped could not easily access their house. Among the respondents, 41.3% were able to use a wheelchair in their kitchen. They, however, pointed out the following problems : the accessibility to the upper cabinet and sink were difficult ; The height of the counter was a little high ; the kitchen space for using a wheelchair was limited ; and entering the kitchen from outdoors was difficult. A wheelchair could be used in their kitchen with not too many major difficulties.

All of the Korean respondents, with regard to their kitchen, insisted that the handicapped could not easily access their house. But only one respondent answered that the use of a wheelchair in his kitchen was possible, because there was no threshold between the kitchen and the livingroom. For the elderly, the height of the counter and sink was adjusted to a lower position than the general dimension in one respondent. In order to prevent sliding in the bathroom, a non-slippery floor covering was put down, and stairs at the entrance(a lamp type) was planned. Besides, two respondents complained that the elderly had a difficult time to cross their threshold ; their house was constructed in a traditional Korean style and the threshold was too high. One person responded when the handicapped in their family comes out, the height of the counter and sink need to be altered.

The accessibility of the handicapped in the kitchen was very different in America and Korea. Through these results, social welfare has had an impact on the kitchen design ; the American society was more advanced in the world, and 10 years ago, the universal design concept for the handicapped was adopted in the kitchen. But in the Korean urban and rural societies, the universal design concept based on the well-being of the people has not been adopted regarding the design of the house.

V. AN EVALUATION ON THE KITCHEN

1. Safety • Function • Comfort

The users evaluated the safety, the function and comfort of their kitchens⁹⁾. In terms of the safety, both the American and the Korean evaluators indicated a

positive answer, 97.1% and 96.9% respectively. In American homes, 91.3% evaluated the function of the kitchen positively while 84.6% spoke positively about the comfort. But in Korean evaluations regarding function and comfort, results were lower than in American houses with percentages about 51.4% respectively.

There were few negative evaluations in the American rural kitchen. Regarding function, 8.7% of the evaluators gave negative answers because the workspace was not large enough. About 13% of the evaluators answered comfort negatively, because there was no social or dining space within the kitchen and the kitchen space could not accommodate a lot of people. And so, these results from American respondents revealed that the function and comfort of the kitchen were related with the size of the kitchen space. Also, the results were similar to the 1st analysis on the users' needs and the latest results from special features and the adequate design of the rural kitchen. Therefore, the most important factor to plan the rural kitchen space was the dimensions within the houses.

Regarding the safety of the Korean rural kitchen, 8.1% of the evaluators indicated negatively to the probability of sliding on the kitchen floor. The negative evaluation on function, 48.6% of the evaluators expressed, it was caused by the small kitchen space. And while 48.6% of the evaluators answered negatively in regards to comfort, stating it was due to the clean arrangement in the kitchen.

The evaluation from the Korean respondents was more negative than the American in regards to function and comfort. These results revealed that the Korean kitchen space primarily accommodated the human's need. In other words, Korean residents positively evaluated safety as the basic need, whereas function as a convenience and comfort as an easiness were quite negatively evaluated. Therefore, the American kitchen design could be reflected more the human's needs¹⁰⁾ than the Korean kitchen design.

2. Satisfaction

The satisfaction of the kitchen¹¹⁾ was evaluated, and 90.4% of the American evaluators answered 'greatly satisfied' and 'somewhat satisfied' on their questionnaire.

9) The safety, the function and comfort of users' kitchens measured respectively one question with a nominal scale. yes(positive answer) or no(negative answer).

10) According to Maslow, he insisted the hierarchy of human's needs : the first is the physiological need, the second is the need for safe and security, the third is social and one's belongings, the fourth is the need for self-esteem, and the fifth self-fulfillment need.

11) This study adopted a measuring satisfaction of a 4 point-Likert scale both the American and the Korean. At first, the research adopted a 5 point-Likert scale, but Ruth Brent proposed that a neutral value is not clear. The question of satisfaction was measured by one question, a overall evaluation of the kitchen. Because the study of kitchen space in Missouri, U.S was conducted by a mail questionnaire method, the questionnaire was constructed very simple. Also the Korean study was a pilot survey through a interview method and the satisfaction was measured by one question.

Most American respondents were satisfied with their kitchen. When the respondents felt their kitchen space was well planned, with the necessary equipment • facilities • appliances, the work counters, a dining table and a pantry, they evaluated it as 'greatly satisfied' (52.9% of the evaluators). The researchers understood that the equipment • facilities • appliances to support the work in the kitchen were the most effective factors to design it. And so, the influenced factors were the design to reflect the users' needs, the easiness to work and maintain, the meeting of the family, and the size of the kitchen. For some, evaluating it as 'somewhat satisfied' was caused by the small kitchen space and the shortage of kitchen facilities. The respondents indicated 23 individual reasons. The unsatisfied factors were the shortage of storage space, small kitchen space, circulation of facilities • equipment, except for the people who were 'greatly satisfied' and 'somewhat satisfied' .

To summarize the American results, regarding the safety, function, comfort and the satisfaction of the kitchen space, the most important factor in designing the kitchen was large space. Also, the size factor was related to the equipment • facilities, the dining space and the actual family meeting space.

However, 13.9% of the Korean evaluators answered 'greatly satisfied', 38.9% 'somewhat satisfied', 44.4% 'a little satisfied', and 2.8%¹²⁾ 'not at all satisfied', on their questionnaire. To compare this with the American survey, the satisfaction with the Korean kitchen was quite low. The results were caused by the housing style¹³⁾ and the kitchen type ; the Korean rural houses and kitchen spaces were not modern enough. Particularly, the Korean rural dwellers felt major differences in the kitchen of the rural area from that of the city, by the influence of mass media, and so, their response was one of low satisfaction with their kitchens. Therefore, the satisfaction of Koreans on their kitchen was determined by the kitchen type, which was in turn reflected by the structure of the house¹⁴⁾. The researchers could insist that the design factors of Korean rural kitchens determined the house style(modern) and a western kitchen type which corresponded well to farmhouses.

VI. CONCLUSION

The American rural residents needed the rural kitchen to be designed as a large space, a large enough storage space to handle a freezer, a pantry and an easiness to work. They wanted the kitchen as a family living area to be equipped with a

12) The answers for the reasons evaluating satisfaction were not clear and were deleted from data.

13) The Korean rural house style has 3 types : a Korean traditional style, an improved style and a modern style. The Korean traditional and the improved styles were around 73.0% of the homes, and the modern style consisted of 23.0% of the homes in Korea.

14) The findings about the chi-square analysis on satisfaction with the kitchen and the kitchen type, were the chi-value, 43.615, in approximate 99% (df=6), the gammer's, -0.897, and the relationship between the satisfaction and the kitchen type changed. The relationship between the satisfaction and the improvement of kitchen did not.

dining table and to be arranged as the central part of the house. The kitchen has become the heart of the family living space to meet and socialize together. These needs were influenced by social changes, and the kitchen was no longer a working space for only women, but a living space for the whole family. Also, the American rural kitchen has adopted the concerns of society, the recycling efforts and the accessibility of the handicapped.

The researchers were very impressed with the special feature of the Korean rural kitchen, 'a secondary kitchen' for making Kimchi and preparing family events. The Korean residents needed a dining kitchen design and enough storage space similar to the Americans. According to the Korean traditional food life, a refrigerator for Kimchi and Dalak were very unique needs and reflect cultural differences. They desired the kitchen design to be equipped with electrical appliances(58.6% of the respondents) and these needs were effected by socio-cultural backgrounds, which differed from that of the American needs. Also, the space related to recycling efforts was accommodated indoors in the American house, but the Korean's efforts occurred outdoors - in the Madang or barn - or even in the public area of the community. The Korean rural kitchen was not accessible for the handicapped.

In conclusion, from the findings based on the comparison of the American rural kitchen with that of the Korean showed that the needs of the rural kitchen were different between two countries due to the gap of social system and culture. The design of American rural kitchens, rather than that of Korean kitchen, has adopted the users' needs and social concerns. The cross-cultural comparison revealed that the American kitchen has better adopted the needs of the residents, and it was evaluated positively and residents were very satisfied. However, the residents of two countries agreed with the rural kitchens on the affordence of a larger space and enough storage, the dining kitchen style and the kitchen as the heart of the family living space. Therefore, the rural kitchen design factors, space or facilities for storage, larger dimensions, a dining kitchen style and the kitchen as the central region of the house, were applied to both nations.

In the future, this study can be extended in developing an evaluation instrument on a rural kitchen space and in utilizing more data from South Korea. Also, cross-cultural comparisons from other countries for evaluating a rural kitchen space will be useful.

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