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Spatial habits in residential kitchens and the searches for flexibility in kitchen design

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Abstract

While rising urban populations, as a result of industrialization, narrowed the buildable areas in cities, at the same time the World Wars I and II increased the demand for housing. In addition, the change of social dynamics and production models and the development of technology have also been influential in the search for flexibility. Flexibility, which can be considered in many ways, is examined in this article with the space organization, equipment/outfit and time in kitchen design. At this point, the research aims to measure user-specific expectations about flexibility in kitchens design. A survey was proposed in the study, considering that the determination of spatial habits in the kitchen is determinative in terms of which parameters should be taken into account in flexibility. The aforementioned survey was applied to people between the ages of 25 and 40 who live in apartments in Istanbul and work overtime. The survey has revealed that spatial habits in the kitchen vary with the square-meter of houses and their organization scheme according to it. For example, in 1+1 and studio apartments, the connection of the kitchen with daily life is stronger, however there are difficulties in use in terms of equipment and spatial organization. On the other hand, in relatively larger residences, it was seen that not preferring to spend time in the kitchen is due to the fact that the psycho-social requirements of the functional and flexibility of the kitchens were ignored during the building production process. In the study, it is argued that while it is possible to develop more creative and multifunctional kitchen solutions in changing square-meters, it is due to the imitation of the same plan templates of build-and-sell managerships in the apartment building process in big cities.

Keywords: flexibility, functionality, kitchen design, spatial habits, working population

1. Introduction

Technological and social changes have a transformative effect on users through spaces. Like all designed spaces, residences are like an envelope that cover the production styles and fashions of the period. To put it more clearly, spaces convey the life and production styles to the users of that period through forms and volumes (Lefebvre, 2012). Since the Industrial Revolution, traditional kitchens around the world have been replaced by mobile, functional and flexible kitchen solutions with the change in building design and social norms (Cömert, 2017). The change of interior space paradigms as a result of industrialization paved the way for the traditional kitchen types to be erased from urban life. The gradual shrinking of residential square meters as a result of the sudden increase in urban populations necessitated the reinterpretation of eating/food preparation spaces, as in other parts of houses. The first half of modernism promised standard and mass-produced spaces, based on the fact that functional and everyone's kitchen needs are basically the same. Le Corbusier, one of his contemporaries, likened the house to a living machine and stated that the functions of the house were universal. In this sense, the first modern architects were in search of an egalitarian order, regardless of the scale, that wanted the working class to live under

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comfortable conditions (Uyar, 2014). This understanding, solving as many functions as possible in small square meters and observing the diversity of use have formed the first criteria of flexibility.

The kitchen is one of the most intricate parts of the house with its three main functions that can be defined as the triangle of "cooking, storage, and cleaning" and the living practices brought by socio-cultural dynamics. While the social structure, food culture, economy, technology, design acceptances and fashions shape the kitchen image of the period, the user of the kitchen, as the last parameters, customizes the mentioned volume (Geçgin, 2021). Therefore, the kitchen experience varies from user to user. Due to the difficulties of today's city life, the importance of functionality in kitchens in human life is increasing. In our country, Turkey, where lifestyles vary from region to region, it is inevitable that residential kitchens will differ in terms of both size and functional solutions (Serinkaya, 2022). For example, it cannot be thought that the life cycle of the kitchen of a summer residence far from the rhythm of the city and the kitchen of a worker living in an apartment and working full-time are designed with the same actions. Today, it has been determined that people want to spend less time in the kitchen and devote their time to other activities (Leppänen, Jokkinen, 2003). Looking at this reference with a focus on the working population, it can be concluded that the expectation for a flexible kitchen, which is suitable for the hasty rhythm of the city and where many functions can be seen together other than kitchen functions, outweighs. In the kitchen, which is defined as a habitus, it is important to examine the speed of work and flexibility criteria.

The aim of the study is to analyse the expectations in terms of flexibility and volume in kitchens with narrow volumes and to analyse whether residential kitchens designed with the principle of flexibility meet these expectations. After briefly mentioning how flexible kitchens have evolved with capitalist production models from the beginning of modernism to the present, it was investigated whether the design inputs of various sample kitchens solved in narrow volumes are covered by the criteria established in the study. In order to find these criteria, in the methodology, a survey study was proposed in which the spatial habits and adaptations of the users in the kitchen are examined. Hoping that the results of the survey would match the conceptual infrastructure and hypothesis, what users expect from residential kitchens and their spatial habits and expectations in the kitchen were measured. Survey answers were reviewed within the context of flexibility approaches and a complete of information was created to provide recommendations for the current situation.

2. A glance to the concept of flexibility in interior architectural scale & determining flexibility criteria

The Industrial Revolution is regarded as the main factor of growth of modern cities and shrinkage of residential areas. As people migrated to cities and the new working class began to form in metropolises, areas of housing got shrunk. Thus, designers had to find multifunctional solutions for narrow apartment flats. Beside the Industrialization, World Wars I and II increased the demand for housing and efforts for design flexibility. In this sense, dynamics of modernist paradigm required mass and monotype production model. (Sariyar & Pakdil, 2012). Schütte-Lihotzky's famous proposal, Frankfurt Kitchen can be handled by both equipment and spatial organization level in this context considering women in the working class. It's possible to say that early phases of flexibility and multi-functionality searches could find reciprocation with only socio-economic classes and gender norms (Surmann, 2017). After this period, development of individualization and production techniques, the post-modern face of capitalism (mass customization) has included the image of the product in the consumption culture as the primary reason for purchasing the product (Sarıyar & Pakdil, 2012; Lefebvre, 2012). As individual requests have been taken into account more than before, the user's savings on space have increased. The user's ability to adapt the space according to himself is another important reason that paves the way for the increase in flexibility and diversity in kitchen designs (Hatipler, 2017). The socio-economic class-based roles assigned to individuals by the modern age have increased the differences between each other's living spaces and spatial habits. Although the lifestyle and desires of the user are taken into account in the principle of

flexibility, mass housing in Turkey forces individuals to live in similarly planned spaces. It is understood that the search for flexibility in kitchen design, which is the scope of the study, is one of the results of the shrinkage of residential square meters as a result of population growth and the change in lifestyles, and this current situation requires rethinking of user-specific and compact kitchen solutions in the house. In the event, the concept of flexibility has become both a need and a quality offered to the public as a result of individualization.

While the flexibility is based on variability, it can also be expressed as the ability to adapt and the ability to meet changing requirements with minimum effort (Atasoy, 1973). Flexibility, which is a twentieth century problem, has been handled from different perspectives by theorists and various definitions of flexibility have been made (Uzel, 2001): Kami and Friedman defined flexibility as the ability to adapt to new situations and needs. (Friedman, 1990; Kami, 1995) They emphasized that as the number of people using the space and the functions of the space change over time, the whole of the relations in the space can be re-established. In this sense, the concept of flexibility they talk about affects the whole plan and the functional scheme. The user's ability to adapt the space according to his own needs is one of the important criteria of flexibility. Flexible space should allow the reorganization of its organizational chart (Bayram, 2011). Ok (1985), with a much more radical stance than Friedman and Kami, saw flexibility in the building design process as the ability to function spaces as desired by the user (Tapan, 1972) mentioned flexibility as the ability of the same unit to respond to different user needs and to benefit from the same volume for more than one function without touching the structure. Solving multi-functions in narrow spaces is a form of flexibility that can be presented on the basis of equipment and details. These decisions, which can be taken at the scale of interior design, will be discussed separately within the scope of the study. In the light of these references, flexibility is a criterion for adapting a volume to the life of the user, both at the level of equipment and at the level of space partitioning. For the study, as seen in Figure 1, the flexibility criteria were determined by examining the spatial organizations and kitchens of some designers' famous buildings.

the designer's name	the building	the approach	the kitchen proposal
Bruce Price	Fun Place	multi-functional use of space	several functions beside storage, cleaning, and cooking
Le Corbusier	Villa Savoye	free plan and border flexibility	organic relation with circulation axis
Gerrit Rietvelt	The Schröder House	changing interior volumes with movable panels	integration between dining, living space, and kitchen
Can Çinici	Mikro-Loft Yarasa	fluid plan diagrams	mobilization of kitchen in house

Figure 1 Flexibility approaches and kitchen interpretations in the sample buildings of the designers (Barışık, 2019; Asımgil & Durmuş, 2021).

The approaches in the table (Figure 1) are seen as multi-functionality, boundary-span plan types, freedom in spatial segmentation and fluid function diagrams. For this approaches, detail solutions in interior architectural scale is of great importance. It is hoped that the kitchen design approaches indicated in the table will form an evaluation base for the kitchens of the users in the survey. In this way, it is thought that with the help of the proposed survey, the design examples presented to the users around the world can be thought about whether they are suitable for the lifestyle of the users in the city life. The concept of flexibility can be found in many scales. However, in this study, the search for flexibility in kitchen design should be examined under the sub-title of flexibility in the housing unit.

2.1. Flexibility in spatial organization and spatial segmentation level

It is a fact that has been revealed before today that completely open and fluid space solutions in residential designs are not comfortable for the general public in terms of privacy (Alexander, 1977). However, many users are positive about the idea of partitioning the house without requiring an expert. In order for the users to easily separate and use the space, it is important that the dividing elements can be produced with a certain standardization, that they do not need plaster, coating, finishing work items, that they can be easily changed and that they can be produced in a variety that will appeal to the aesthetic perception of the user (Ayaydın & Deniz, 1995). When it comes to the kitchen design, although kitchens are generally located close to the vertical installation axes in the apartments the connection between kitchens and other parts of the house can be reorganized by user's own decision as can be seen in Figure 2.

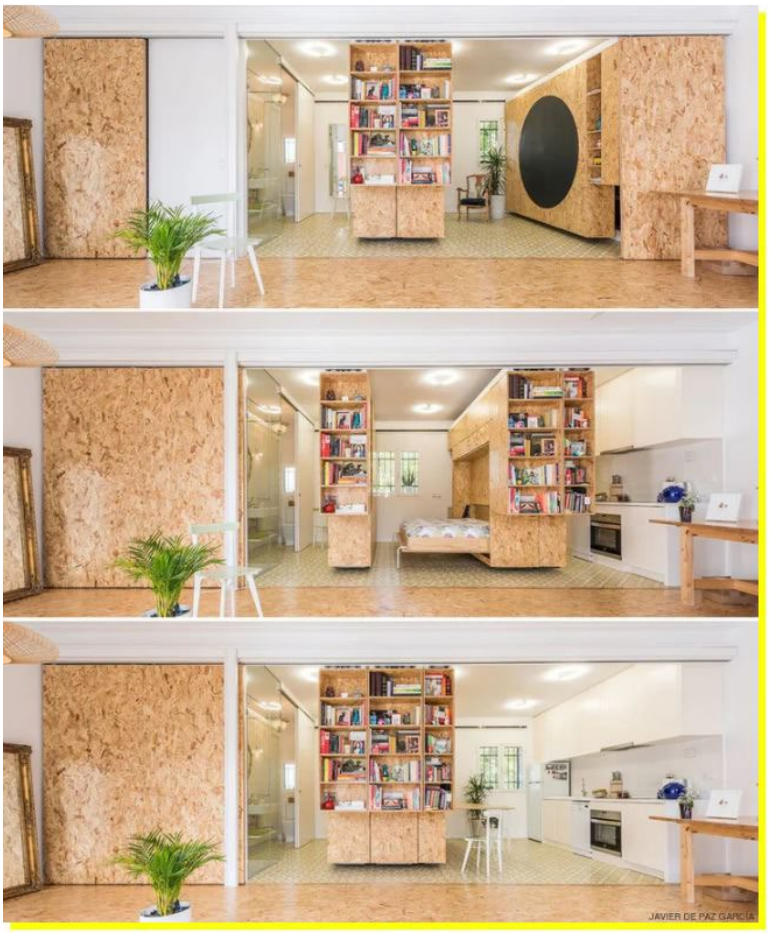

Figure 2 Movable wall solution by Madrid based architectural studio PKMN-Architectures, photographed by Javier de Paz Garcia (Huffpost, 2015).

Partial or complete integration of kitchens with living spaces has been popular around the world since the 1950s as Le Corbusier designed Unité d'habitation in Marseilles in 1952 (Figure 3; Le Corbuiser World Heritage, 2019). Its popularization in Turkey dates back to the 80s-90s. With the accelerating westernization on the cultural axis and women becoming more visible to the business world, their role in the kitchen has become more shared with the other members of the house than before (Güler, 2007). As a matter of fact, the open kitchen invites other members of the house to the kitchen with its volumetric connection with the living space. At the same time, it's a necessity that user must be able to block dirty or mechanical view of kitchen areas. This freedom is found necessary to be given by designers (the change shown in Figures 4 - 5). The kitchen started to connect with the living space somehow, coming out of the four walls; It has become not only a place to eat, but also a showcase where the owner wants to express his aesthetic understanding and lifestyle (Uyar, 2014).

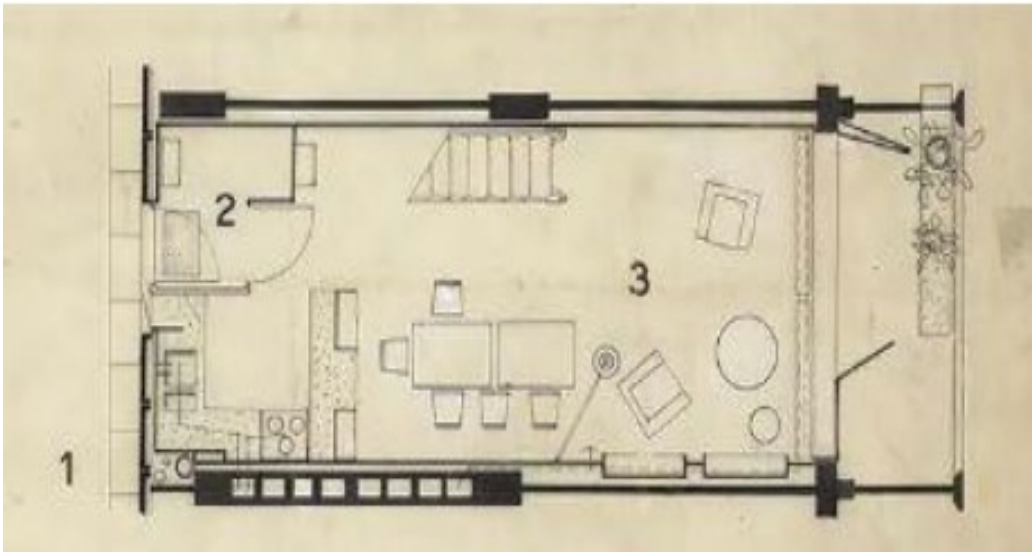

Figure 3 Plan of flat types in Le Corbusier's residence project called Unité d'habitation in Marseilles (Le Corbusier World Heritage, 2019).

Figures 4 (left) and 5 (right) Change in the visibility of the kitchen volume with the partitioning elements in Can Çinici's Micro Loft Bat House (Barışık, 2019).

2.2. Flexibility in equipment level

Although the kitchen has undergone a long evolution to date with social, economic and technological changes, the three main functions – storage, cleaning, cooking – have remained constant. With the shrinking of houses and the emergence of new housing definitions such as tiny-house and micro-house, it has become important to try to solve as many functions as possible in small spaces with interventions at the level of equipment in the kitchen as examplified with smart systems seen in Figure 7 and 8. Today, with the development of software (Arduino) and the internet, this effort has gained a new dimension (Ekren & Küçük, 2020, Figure 6). It can be said that inventory tracking and time savings achieved by seeing more functions in the unit work area have also become a criterion of functional flexibility. Smart surfaces, examples of which are shown in Figures 6, 7 and 8 allow more effective use of a narrow square meter by reducing the distances in the storage-cleaning-cooking triangle. Examples of the flexibility of the surface reinforcement are the use of the sink, which is closed with a sensor on the far left, as a food preparation, cutting and

chopping area (Figure 8), or the rightmost counter turning into a stove when cooking, or turning into a surface for working or eating otherwise (Figure 7).

Figure 6 Smart surface technology which identifies ingredients of meals (IDEO, 2015).

Figure 7 Lapitec Induction System designed by Lapitec S.p.A. (German Design Award, 2017).

Figure 8 Invisible Sink designed by Offmat Kitchen Concept (Business Insider, 2016).

Multi-functionality in the kitchen is useful as long as the user's movements in the kitchen are not restricted. Therefore, ergonomic principles and the rule of kitchen work triangle is recommended to be followed (Figure 11). This rule is based on the circumference of the cooking-cleaning-preparation triangle should not exceed 7.9m and be less than 4m for an ergonomic space experience (Mihalache, Møretrø, Borda, Dimitraşcu & Neagu, 2021). However, in living areas where cooking is not intensive, these standards can be stretched or mobilized such as the vertical kitchen proposal by Facchinetti Partners (Figure 9). The examples in Figures 9 and Hafele's rotated cellar (Figure 10) are space-saving solutions, with the modular reinterpretation of the storage-cleaning-cooking triangle in the vertical plane, whose effect is felt mostly in three dimensions. Parts moving in the vertical plane can provide convenience both in terms of disabled accessibility and anthropometric measurements that vary from geography to geography (Figure 11).

Figure 9 Facchinetti Partner's vertical kitchen (Facchinetti Partners, 2013).

Figure 10 Hafele's rotated cellar (Uyar, 2014).

Figure 11 Vertically moveable kitchen units (India Mart, 2018).

A la Carte kitchen modules (Figure 12 - 13) where the storage- cooking - cleaning triangle can be rearranged at the initiative of the user, is an example of a solution that meets the psychosocial and functional needs of the user in terms of both space organization and equipment. This organization method can also be applied in office areas.

Figure 12 (left) & 13 (right) A la Carte Kitchen by Stadtnomaden (Architonic, 2014).

2.3. The concept of flexibility and time

In order for flexibility in design to be sustainable, it must adapt to the conditions of the passing time. This time frame may vary according to the planned process. In flexible houses, a change can be observed in the long term according to the increasing and decreasing population in the residential household, and the change in the organization of the space during the periods of the day can be a desired flexibility criterion. French sociologist and writer Georges Perec states that functionality is followed by the nictomeral (24 hours) period in the partition of today's apartments. He draws attention to the fact that the functions in the house correspond to certain time periods of the day. In this way, he reads the functions of house partitions by the concept of time (Perec, 2017, p.50). Taking this criterion into consideration in the survey proposed in the study, it was desired to measure the time periods the users spent in the kitchen and what they did during this time. Chaillou's interpretation of time flexibility in design is explained in Figure 14 as follows. Chaillou explains: “When employees and visitors start to arrive in the morning hours, the units are arranged in a grid manner, while individual and co-working spaces are gathered in the center on the upper floors; the kitchen and rest areas recede and disappear.” (Asımgil & Durmuş, 2021).

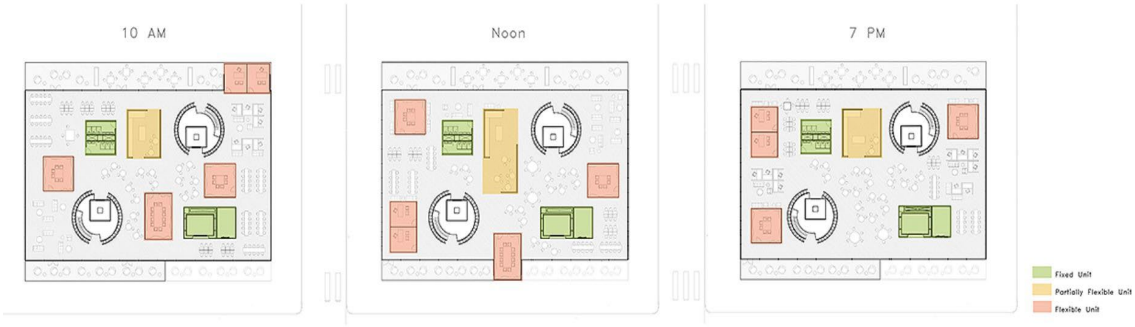

Figure 14 Plan diagram from Chaillou's project Metabolism (S), inspired by the Nakagin Capsule Tower (Archdaily, McManus, 2018).

3. Research Method

After examining the flexibility criteria, a questionnaire was proposed to measure the users' relationship with the kitchen and their expectations in kitchen design in the context of flexibility. For the quality of the research, it is necessary to limit the user profile, because the life routines of the users, even the kitchen schemes and user habits may vary depending on whether the house is in the city or rural area. For these reasons, the population of the study was defined as white-collar workers aged 25-40 living alone in flats in Istanbul. The main reason for choosing this group is that the cooking routine in the kitchen is not stable due to their disconnected relationship with the kitchen, their income group and long working hours. A questionnaire consisting of questions that will measure their routines in the kitchen and reveal their expectations from the kitchens they own/want to be was made to the users. “IS FLEXIBILITY A NEED?” It was expected to be an answer

for the basic research question that can be defined as. The survey questions aimed to reveal 3 basic relationships:

1. House and Kitchen Space Relationship
2. The Relationship Between Kitchen Area, Its Equipments, and Spatial Habits that they All Define
3. The Relationship Between Flexibility, Multifunctionality and Satisfication

Since the awareness of the survey participants about the places can be variable, thus closed-ended questions were asked in addition to the open-ended questions. Closed-ended questions have answer options such as estimated time intervals and plan template to make easier to respond questions. The questions asked in the survey are as follows:

Open Ended Questions

- How many squares is your residence you live?
- Do you enjoy spending time in the kitchen? If not, state the reasons.
- Do you have another activities while preparing or eating your meals in kitchen? What are they if your answer is yes?
- Do you find your kitchen useful? If yes, state the qualifications; if no, specify the dissatisfying features.
- Do you find your kitchen suitable for working? Or do you prefer to work in your kitchen?

Closed Ended Questions

- Choose your kitchen's plan type according to templates below.
- Choose your estimated time interval of staying in kitchen during working days.
- Choose your estimated time interval of staying in kitchen during your off days.
- How many days a week do you prepare meals in kitchen? Choose your time interval from below.
- How often do you use ready-to-eat applications when you're at home. Choose your frequency below.
- I work remotely. Choose yes, or no.

4. Findings

The findings were obtained as a result of comparing the answers in the questionnaire witheach other. The survey begins by questioning the area of the dwelling that is occupied first. Assuming that the users cannot know the area of the kitchen directly, the estimated area of the kitchen has been tried to be estimated in direct proportion to the area of the residence. From the sketches marked for the plans of the kitchens, it provides an idea about what types of kitchen setups we are faced with according to the square meter of the house. The plan type of the kitchen instills certain habits within the potential of the user of the space.

4.1. Relationship between organization of residence and kitchen

According to the responses from 50 subjects, there is no dramatic clustering in residential areas. A significant part of the subjects reside in houses between 80 and 120 m2. In order to determine the spatial habits developed according to the quantitative characteristics of the kitchens, the distribution of the residential square meters according to the people is important. For this, information about the types of kitchens as well as the areas of the houses they reside in were obtained from the users (Figure 15).

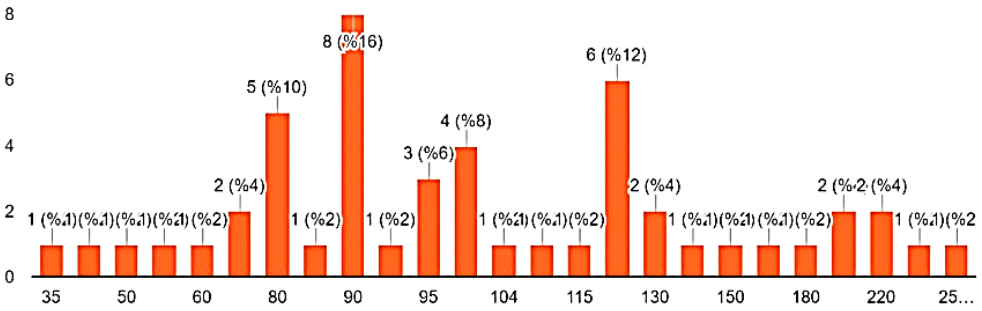

Figure 15 Distribution of residential square meters by persons (Question: How many square meters is your residence?)

Types I and L in the kitchen are the two most preferred kitchen types by 39 subjects. The striking point is that these types are widely used in every kitchen type between 40 and 250m2. While it is possible to develop more original kitchen solutions in changing square meters, it can be said that this uniformity is caused by the build-and-sell management that became widespread after 1965 in the apartment building process in big cities, reducing the effectiveness of the designer and imitating the same plan types (Görgülü, 2016). Considering this situation, it is seen that most of the users cannot choose their kitchen types beforehand. H-type, which consists of two parallel counters, is a kind of repetition of I-type and 5 subjects use this type of kitchen. The user with an area of 35 m2 marked the kitchen sketch as G type. The G-type counter may have been preferred in this flat, in a residence with a narrow space, in order to limit the projection of the kitchen without a divider. Island type kitchen use (marked by 2 subjects) could be seen after 145m2 in the questionnaire (Figure 15 – Table 1).

Table 1 Distribution of subjects according to residential kitchen plan type

QUESTION: Choose your kitchen plan type from determined samples.		
Plan Type	**Number of Users**	**Percentage**
Type I	23	46%
Type L	16	32%
Type H	5	10%
Type U	3	6%
Type G	1	2%
Island Kitchen	2	4%

4.2. The relationship between area of kitchen, its equipments, and spatial habits including

After obtaining information about the housing area and kitchen type from the subjects, the kitchen experiences of the users, the quality of the time they spent in the kitchen and their satisfaction were examined. For this, the subjects were asked to indicate the time intervals they spent in the kitchen when they first worked and when they were not working.

On working days, 90% of the employees (45 people) spend 1-3 hours in the kitchen. Distribution shows heterogeneity in terms of housing area. Two subjects with a residential area of 145 and 200 m2 exceptionally spend more than 5 hours and 6% (3 people) people spend time relatively less than the 5+ group. The spatial habits of these 5 users will also be examined in terms of the time they spend in the kitchen. The rate of spending 1-3 hours in the kitchen on non-workdays decreased to 66% (33 people). While the number of people staying in the kitchen for 4-6 hours in houses under 100 m2 is 8, this number is 9 over 100 m^2 (Figure 15, Table 2). Compared to the previous question, it can be concluded that the kitchen is a place that is actively used and spent time outside of working days, and as the housing volume grows, the time spent in the kitchen increases. Exceptionally, the user, who has a residential area of 55 m2, stated that he spends more than 8 hours in the kitchen on the days he does not go to work. This situation has shown that the kitchen can be an area that can be integrated into daily life in houses with narrow spaces. The frequency of food preparation, which is the main activity of the kitchen, is as follows: Those who prepare meals every day: 5 people (10%) /Those who prepare meals 4-5 days a week: 9 people (18%)/ Those who prepare meals 5-6 days a week: 2 people (4%)/ Those who prepare meals less than 3 days a week: 34 (68%) (Table 2).

Table 2 Distribution of subjects according to time interval while spending time in kitchens.

QUESTION: How much time do you spend time during workdays and off days?		
TIME SPENT IN KITCHEN	**WORKING DAYS (by persons)**	**OFF DAYS (by persons)**
1-3	45 (90%)	34 (68%)
3-5	3(6%)	15(30%)
5+	2(4%)	1(2%)

The development of information technologies has had a transformative role in eating habits around the world, and the market has developed in parallel with the development of the internet since the beginning of the twentieth-first century (Tomaş, 2015). Although there is no direct study on how online food ordering platforms affect kitchen experiences, there are opinions that virtual platforms reduce the need for physical spaces. These inferences refer to David Harvey's concept of time-space compression (Yılmaz, 2018). Ready meal applications are widely used in almost all working adult groups. Based on the results of the survey, 74% (37) of the subjects continue their food preparation habits in the kitchen continuously or partially.

Table 3 Frequency of use of ready-to-eat applications by persons

QUESTION: How often do you use ready-to-eat applications in your off days?		
Use Frequency	**Number of People**	**Percentage**
Almost every day and every meal	1	2%
Very often	12	24%
Intermittently	23	46%
Rarely	11	22%
Never	3	6%

4.3. The relationship between flexibility, multi-functionality and usage satisfaction

The questions asked about kitchen satisfaction were chosen to measure whether the flexibility expectations of the participants in the kitchen volume and equipment level were met. Satisfaction is an indicator to be functional and preferable for daily activities in the kitchen. Here's how to enjoy spending time:

Number of people who enjoy spending time in kitchen	14 (28%)
Number of people who enjoy spending time in kitchen but state some problems	7 (14%)
Number of people who do not enjoy spending time in kitchen	29 (58%)

Among the reasons for not having fun, there are usually reasons such as fatigue, workload, not knowing/not enjoying cooking. In addition, one person reported that he did not like the finishing material (the color of the countertop) that his kitchen had, and that this affected his kitchen experience (Table 4). This situations like this have been analyzed in another studies under the sub-title of psychological needs of flexibility (Uzel, 2001). According to the comment of one of the subjects, who stated that he could not enjoy the time he spent in the kitchen because the kitchen is not tidy, the necessity of keeping the kitchen clean and the items used in the kitchen inconspicuous evokes the expectation of flexibility in design and increase in storage area.

It has been observed that the use of the kitchen for functions such as spending a leisure time, socializing and working is quite limited. From the answers given, it is understood that the functional flexibility in the use of the kitchen is more limited (33%) in the houses with 35 to 80 m2 compared to the larger houses. While the ratio of 80-100 m2 range, which is the most common residential area among the subjects, is 11%, while this rate is 46% in houses between 100 and 250 m2. This apparent limitation in the range of 80-100 m2 shows that the kitchen cannot be adequately organized in the house and is not suitable for other functions (Figure 15, Table 4). Users with this space range complain that their kitchens are narrow (generally I and L-planned) and that their storage areas are insufficient (Table 1- 4). While questioning the usefulness of the kitchen, it was tried to measure whether the kitchens they owned met the criteria related to flexibility, psycho-social, functional, equipment and spatial organization. The most important problems of the subjects in kitchen solutions are that they find their kitchens narrow and they see insufficient space for storage. The narrowness of the kitchen both psychologically distracts the users from spending time in the kitchen and reduces the comfort of the space functionally. The inadequacy of the storage capacity (16 people) and the incompatibility of the storage-cleaning-cooking triangle that forms the organizational chart of the kitchen (5 people) appear as a flexibility problem at the equipment level (Table 4).

The desire to use the kitchen area for other things when necessary or to have compact systems that take up less space (2 people at the rate of 4%) demands a right of disposal in terms of space partitioning and space organization. The housing experiences of the subjects who work from home and those who work outside the home differ from each other. The rate of 12 people working remotely using the kitchen as a working area is 4% (Table 4).

Table 4 Distribution of users according to their satisfaction with their kitchens and reasons for dissatisfaction

QUESTION: Do you find your kitchen useful? Why if not?		
Satisfaction Status	**Number of People**	**Percentage**
I find it useful in every aspect and it has enough storage area.	26	52%
I find my kitchen narrow, and its storage area is inadequate.	16	32%
My kitchen equipments and furnishings are not suitable for my body size.	2	4%
Plan organization of my kitchen is problematic.	5	10%
I don't spend much time in kitchen, so I would like to use this area in another functions if it was possible.	1	2%

It could not be determined that the enjoyment that the subjects took from the time they spent in the kitchen overlapped with the kitchen areas or plan types. Subjects with a wide range of fields usually spend time on social media platforms while preparing/eating food in the kitchen, watching television or consuming media products such as TV series, movies, videos, music and podcasts via the internet. It has been revealed from open-ended answers and shown in a reduced way as in Table 5.

Table 5 Usage status of the kitchen area other than cooking and eating activities

QUESTION: Do you use your kitchen other than eating and preparing meal?		
Use status	**Number of People**	**Percentage**
Yes	15	30%
No	35	70%

In the investigation on the kitchen usage habits of remote workers, only 5 out of 12 remote workers use the kitchen for food preparation and non-meal activities. When separated by residence areas, the use of the kitchen by people residing under 100 square meters, excluding food activities, is 28% (2 out of 7 people). This rate is 60% (3 people out of 5) for the people residing over 100 square meters. In larger residences, it is possible to say that the kitchen serves more activities and is used for more activities (Table 1-4 - 6).

Table 6 Distribution of users who work remotely and in a workplace.

QUESTION: Do you work remotely?		
Work Status	**Number of People**	**Percentage**
I work remotely	12	24%
I work in a workplace	38	76%

5. Conclusion

Based on the survey data, it is clear that users expect flexibility in terms of functional, psycho-social and organizational aspects from their kitchens. However, as discussed in the findings, the fact that the kitchen practice in the house cannot vary much according to the plan features limits the functional diversity and comfort of many residential kitchens. According to the average, kitchens can be open to multi-purpose and social uses, since the kitchen volume is more integrated with the living spaces in narrow-spaced houses. People who work remotely can also use these areas to work. However, flexibility solutions at the hardware level should be considered in terms of privacy shown to hide smell or clutter that emerges as a psychosocial problem. It should also be taken into account that the users suffer from the lack of storage space and the ergonomic problems of the kitchens.

Ergonomic problems should be overcome with modular systems that can be positioned in the vertical plane according to the body size of the person. The subjects were mostly clustered between 80-100 m2. In houses with more than one room, keeping the kitchens narrow in order to keep the room areas wide affects the comfort and effective use of the kitchens. As a self-criticism, it is thought that it is necessary to ask how much the respondents consider the kitchen area in their housing preferences. However, in the context of Istanbul, it is important that the efficiency of the designer and owner in housing design is not sufficient and accordingly, the right of disposition should be increased in this regard.

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Resume

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