



The Joys of Cooking: a System that Encourages Preparing Food

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Abstract

International students living abroad miss the tastes of their home food while trying to familiarise themselves with the new flavors and feelings of the country they are studying in. They want to cook in their dorms and apartments, but they are limited by space and budgets to acquire a proper cooking workstation. The author was inspired to explore the challenges and problems of international students studying abroad. At the same time, the objective of the study was also to encourage young people to keep cooking and find the joy of cooking in a limited space, while also improving the efficiency and convenience of cooking within a tight budget and having to choose the necessary modular kitchen systems. Data to support this approach was collected via face-to-face group discussions as well as surveys conducted on social media. According to the result, 80% of the international students wanted to choose and customize the necessary kitchen parts independently and preferred them to fit in small spaces, thereby facilitating and encouraging people to cook. This article explored a modular kitchen system that can grow in the future, which meets the purpose of user self-selection, that is, choosing the parts they currently need and designing and assembling a unique cooking island according to the room layout, as fun as playing the Lego system. It is easy to convert and maximize the use of limited spaces. When the users need to move to a larger area and want to perfect their kitchen, they do not need to discard the original modules but assemble new modules that best match their needs, thus, saving money. The modular system allows users to combine and place functional areas following their habits to achieve efficient cooking. The author will not limit the functionality of the module so that the users can self-play. The lightweight feature also allows the modules with greater possibilities; it is not limited to only the kitchen system, but it can even grow into a portable working system, by changing the size and materials.

Keywords: joy of cooking, modular kitchen, kitchen storage, portability, compact cooking system.

1. Introduction

The purpose of cooking has not been limited to filling the stomach and maintaining good health. The taste of food will remind us of the memory of a specified period. Either warm or sad, it is the medium of our emotions, the guard of health. These reasons are why cooking is so important. Today, fast food has become a food culture. People do not have to prepare materials and spend time in the kitchen. The food culture and system have changed dramatically in recent decades. Those issues have met widespread attention, especially concerning dietary health, the effects of eating habits on health, and food-related illnesses. Contemporary young people are already in a sub-healthy state. Along with these problems, more cooking shows and other forms of entertainment programs with cooking themes have become more and more exciting. As a result, schools even offer cooking classes, which makes cooking even more critical (Tull, 2018).

However, the fact is that modern people work every day. Their pace of life is quick, and they often do not have enough time to cook. Moreover, it is too expensive to buy a full set of equipment, especially for young people who are either busy studying or working, living in small apartments, and earning low incomes. They cannot afford and find it unnecessary to have a complete kitchen. However, they still need to eat and maintain good health. Based on this fact, the author began this research. The author is an oversea student who has a rented apartment and misses the tastes of his hometown. He decided to cook by himself, but because of insufficient budget and unnecessary to buy a complete set of cooking equipment, he only has one induction cooker. Preparing food takes more time than typical everyday chores and activities, and studying also takes an amount of time. Thus, there was not enough time to cook at all. According to the survey, many people faced the same problems as the author. The kitchen is a place frequently used at home and plays a

[1950]



significant role in our domestic lives. However, it is also a place that many people love and hate, especially for some office workers. The author hopes to prepare creamy and delicious food for the family, but often not enjoy the boring and tiredness of kitchen work. Though housework takes about 10% of the time, it consumes the most considerable energy. If one can design an efficient and rational kitchen system, one can get rid of tedious and tired kitchen work, make kitchen cooking efficient, convenient, and fun, that even encourage people who are not good at cooking enjoy it.

How to be a speedier, more efficient cook, and how to make 30 minutes recipes finish on time. It was cooking courses have taught us how to cook efficiently, set up the work area correctly, and prepare the necessary tools before cooking, such as cookpot, bowl, cutting board, knife, shovel, and trash can. The author starts cooking from a cutting board and a kitchen knife. First, the ingredients to be cut are prepared in advance on the left side of the cutting board in order. After that, the cut ingredients are stored in the container. On the right side of the cutting board, the parts are processed in order from hard vegetables, soft vegetables to meat. This step can reduce the time wasted from repeatedly cleaning the cutting board and the cooking process, oil, salt, shallots, and garlic. Also, putting them in an easy-to-find location can refrain from wasting time by avoiding repeated searches. Of course, to avoid getting back and looking at the recipe determination step by step, it is essential to be confident and memorize the recipe. We will find that before cooking, the chefs will prepare the required materials in advance, dice the vegetables, and calculate the needed amounts of seasonings in the container, even if some ingredients are only used when finishing. There is also systematicity, ensuring sufficient space and cleanliness of the work area, all tools and materials are in the place where they should be to avoid always wasting a small pile of things and wasting time. Cleaning on time is also essential, and cleaning on time also means that cleaning is easier, when the batter is wet, the battered bowl will be clean faster. It is easier to reuse measuring spoons if one rinse them quickly after each use. Usually, there is enough time to clean, wait for the pan to heat up or during the cooking progress. Put a bowl of soapy water into the sink, immerse the measuring cup and spoon in it. Because one tends to reuse these ingredients in other recipes, it is easy to remove oily or dry ingredients (The Kitchn Editors, 2019). It can indeed improve cooking efficiency, but only if there is a set of relatively complete kitchen space, which costs a lot and is helpful. However, it does not solve the problem in this article.

Regarding memorizing recipes, it is also difficult for people with bad memories. In 'Fika: 30 Classic Swedish Baking Recipes from Bite-size Cookies to Festive Cakes' published by IKEA (2012), each of its recipes is presented in the form of pictures (Kristoffersson, 2014). The color and texture of different ingredients can be distinguished at a glance, and it is more intuitive and accurate. The user does not have to go to the book to confirm each time. Even standing a few meters away still knows how much the dish needs. This kind of presentation method is found more efficient than any others.

According to analysis in 《Kitchen Supplies Design of Single Hotel Apartment》 (Li, 2008), a lazy philosophy has quietly emerged among young people in modern society. Their primary purpose is to fully enjoy the fun of life while studying and working hard. This rather deprecatory term gives a new definition: lazy but smart, a new lifestyle has been created. These 'lazy-smart' people need to be nutritious and straightforward and, for them, saving time and effort is the most important thing. They prefer to use simple and durable products that are minimalism and prefer high quality, small and compact multi-functional or modular products. Therefore, IKEA, MUJI, and other brands have a pivotal position in the hearts of young people.

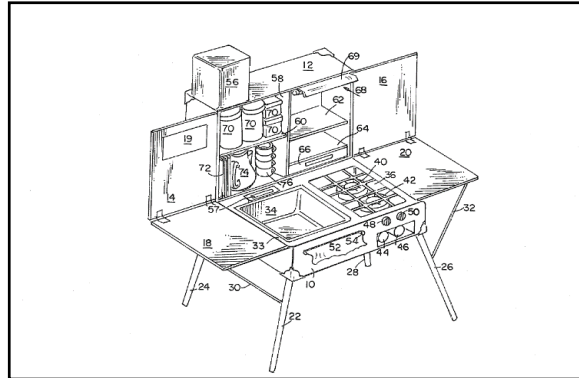


Figure 1 Compact kitchen of Edgar R. Bernier (Bernier, 1975)

Based on the appeal, the author conducted a study on Edgar R. Bernier’s compact kitchen (Bernier, 1975) (Figure 1). Although the compact kitchen solves the problem of small space cooking appliances to a certain extent, it is more inclined to portability and camping.

2. Objectives

1. To increase the space usage and improve the efficiency and convenience of cooking with a tight budget.
2. To design modular kitchen systems and explore the possibilities of developing.

3. Methods

This study consisted of two main stages and applied to universal modular kitchen design. The first stage involved the research of young kitchen users’ needs and discovered how their needs are correlated with each other through literature reviews. In the second stage, the author conducted face-to-face learning exchanges with ten international students; two from China, one from Myanmar, and seven from Thailand, to clarify the problems and concerns encountered by young kitchen users. Social media was also used to collect viewpoints and opinions from twenty users. Lastly, the design of the compact cooking kitchen was proposed.

4. Results

4.1 Survey results

The cooking process composes of three steps: preparation, cooking, and cleaning. Table 1 shows times spent on four different cooking methods, including fry, boil, braise, and bake. From the forum group data, the cooking itself does not take much time compared to others. The similar tedious and repetitive processes like preparation and cleaning work take up most of the time. Moreover, because of too many tools and clutter positions, the step of finding seasonings also involves in the cooking period.

Table 1 Different cooking methods time it is consumed.

Cooking methods	Prepare time	Cooking time	Finding seasoning time	Cleaning time	Total time cost
Fry	15 min	10 min	5 min	10 min	40 min
Boil	15 min	30 min	3 min	12 min	60 min
Braise	10 min	30 min	0 min	10 min	50 min
Bake	90 min	25 min	15 min	20 min	150 min



The attempt to save cooking time motivated the author to design the cooking set for reducing the time consumed, particularly the preparation, seasoning finding, and cleaning.

With the survey result by interviewing 20 international students, it can be concluded that 80% of international students want to choose and customize the necessary kitchen parts independently and prefer it to fit in small spaces.

4.2 Conceptual design

This research, based on the analysis of cooking and the use of space, aimed to solve problems from a design perspective, starting from preparation to cleaning steps, maximize the usage of space and the efficiency of the store, and retrieve the object to create practical and exciting solutions for the storage systems. The author proposed a preliminary design idea, weekly cooking plan, and storage system.

A weekly cooking plan covers from preparing early and segregating food based on their freshness as anything stays fresh for a maximum of one week to balancing the nourishment and organizing ingredients for consumption for balanced nutrition. Preparing ingredients every single meal does not only take time for cutting vegetables but also cleaning and organizing tools, so preparing multiple servings in advance at once can effectively save time and improve cooking efficiency. At the same time, the research also shows that when people plan and do something purposefully, they will be more rational, think more carefully, and more easily maintain nutritional balance and gain good health.

The storage system, referring to the space station's limited use of limited space, try to incorporate kitchen appliances into a box-shaped space. The top of the box is made of a transparent material to make it easier to see inside. It is also equipped with slides, and the seasoning jar is fixed on the slideway on the top. When cooking, the user can pull the seasoning jar over the slideway and push it back after use to prevent it from being stained by oil. The sides of the box can be used for hanging rice tools and pots. Liquid seasonings such as soy sauce and oil can be stored in the front of the box, equipped with a long pump head with a pressure pump. It can be easily cleaned with paper towels and, after use, can be pushed back to the place to save most spaces that need to be cleaned to achieve efficient and convenient cooking.

Although the above two assumptions have solved some problems to a certain extent, after the users' surveys, it was found that the method of use was not precise and took some time for preparation. It does not solve the problem of unreasonable placement of the functional area, so the author adopted further survey, inspired by the Lego system and traditional modular kitchens, which proposes a modular kitchen system design with more possibility.

The final conceptual design is a modular DIY kitchen system, referring to Lego toys, designing kitchen utensils into small parts one by one. The users can freely assemble to achieve the best, most suitable for their own personalized cooking space (Li, 2015). The users can also choose the required modules by themselves. For assembling, only the necessary modules will be selected to save space. Figure 2 shows the details of the system basic modules and has the little cube on each module's top and the spare sideline on the bottom. With those structures, the system will quickly be fixed with each other, like the Lego system. For freely assembling, the author proposed a more different specification module, adding other expansion function modules based on the basic module to improve the kitchen function. Figure 3 shows how the basic module and add-on parts work together.

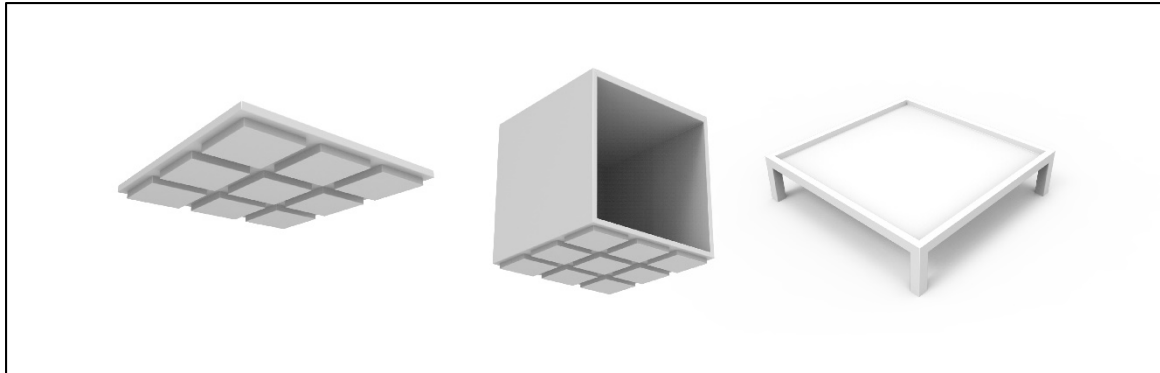


Figure 2 Basic unit of modular kitchen system.



Figure 3 Exploded view of an add-on module joining system.

The multi-directional stacking assembly method can also be better, and it is easier to implement deformation and multi-functional appliances. The processing of ingredients in cooking mainly includes the preliminary preparation stage and the later cooking stage. In the preparation stage of the ingredients, they need to be washed, cut, and garnished, and in the later cooking stage, the ingredients need to be steamed, roasted, cooked and fried. The modular design can modularize and integrate the cooking equipment, electrical equipment and kitchen countertops according to the processing process of ingredients. The whole kitchen was divided into four modules: a storage module, a washing module, an operating platform module, and a cooking module. These modules, arranged in order; storage table, washing table, storage table, operation table, storage table, cooking table, storage table, washing stations, counters, and cooking stations, can be increased in quantity as needed.

This system can also be bought as just a single item, grow over time and later form into a modular set. It can also work well with a typical single working table and expand the function to cook (Figure 4). This module height is 15 cm, and adding on the working table; it will become 90-95 cm, a perfect height for cooking.

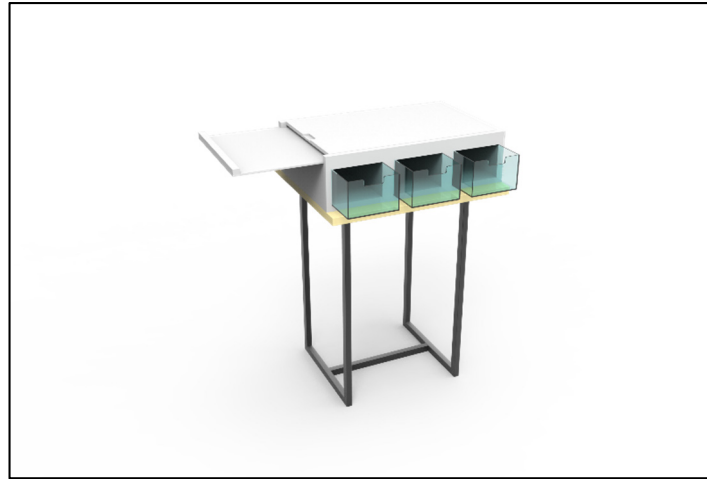


Figure 4 One module with a working table.

By adding more modules, the user will have a relatively complete kitchen (Figure 5). The author designed an expandable workboard for the chopping area that can slide out on the left side. The blue plastic boxes are for the cut ingredients. These boxes have no drawer side as they can be taken out when the user wants to take the ingredients to the cookpot. After using, the user can wash these boxes and put them back in place. Also, these boxes and the cut board can be replaced with the new ones after overused. Behind the chopping board is a trash can, the baffle plate with hinge is used to stop the cut ingredients so the user can throw away wastes quickly. The right side has a movable metal box for seasoning jar with the magnet. The user can pull back after using to keep it clean. It allows the user to combine functional areas according to their habits to achieve efficient mixing. Keep adding modules; the kitchen utility space can grow as needed. These combinations can be satisfied with many situations.



Figure 5 Relatively complete kitchen

[1955]



6. Conclusion

The objective of this project is to encourage young people to keep cooking in a limited space most efficiently and enjoy it. This design divided the functional areas of the kitchen system, designed independent functional units, and then adopted a unified modular assembly method for freedom installation, which is different from the traditional modular kitchen. This design allows users to assemble freely following their habits as the whole kitchen system is divided into small unit modules. When building the kitchen, the size of the limited space is no longer in concern. Moreover, according to the room layout and the user's needs, the kitchen function can even be realized in the area of 2 square meters to maximize the use of space and also work in combination with existing furniture. The simple connection method allows the overused modules to be replaced individually; thus, saving costs. The flexibility in the choice of materials and colors also enables the modular kitchen system to be applied in different styles, with greater possibilities to meet the personalized needs of the users to achieve exciting and efficient cooking.

This article focuses on improving the efficiency and convenience of cooking under the premise of low cost so that people can enjoy cooking. Based on the compact kitchen of Edgar R. Bernier, these modular systems are combined to fit the requirement of contemporary young people. A further redesign is proposed to achieve an efficient and rational kitchen system through modularity concepts. People get rid of tedious and tired kitchen work, making cooking efficient, convenient, and making people enjoy cooking more. The simple design of the geometric shape module is to achieve more growth possibilities. In the future development, the details will be adjusted to improve the module's robustness, load-bearing, and stability, and add more material choices to achieve its application outside the kitchen space, even the whole interior decoration application.

7. References

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