

# Project “Chopsticks”

## An Asian Life-style Study in Domestic Culinary Habits for Design

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**Abstract :** While the Pan Pacific Region gradually emerges as an economic and political powerhouse in the 21<sup>st</sup> Century, people in the area tend to be apathetic toward their own traditions due to Western influence in the past. In fact, their rich and colorful traditions, if understood properly, could give rise to new opportunities in design and thus business in the new era.

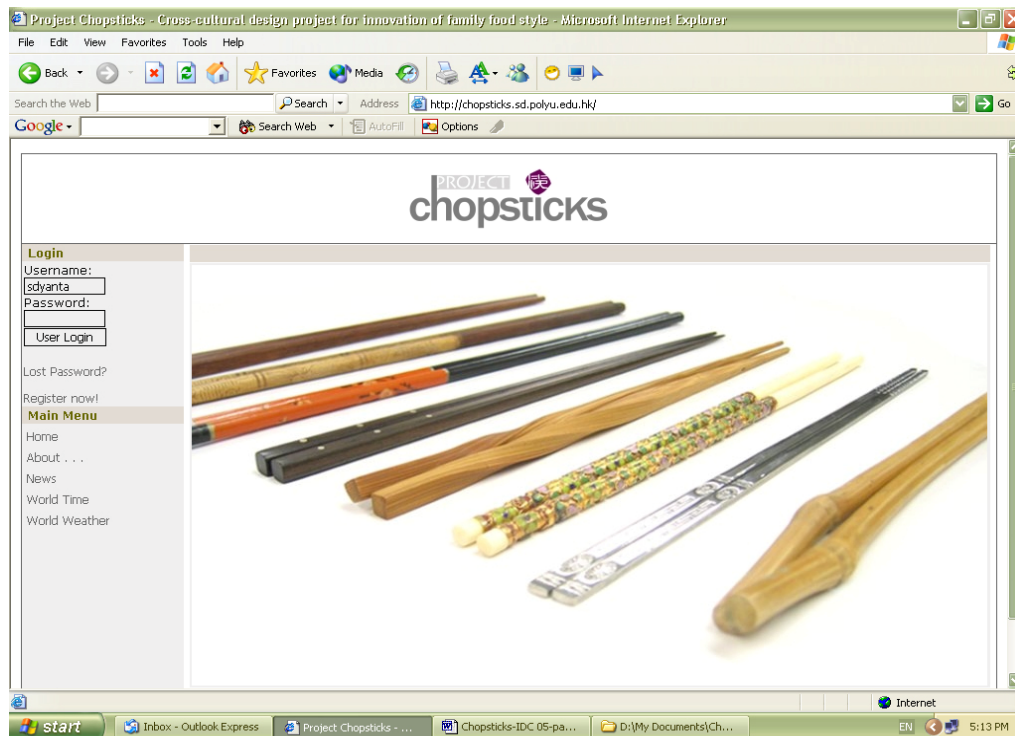
Project “Chopsticks” is a trial cross-cultural research exercise in Design that aims at understanding selected Asian people in the “Chopsticks” culture, particularly in their culinary habits at the domestic level. It has led to the exploration of design opportunities in Asian cultural identities, and has also provided the opportunity for collaborative, cross-cultural design research among several universities in Beijing and Hong Kong of PRC, Japan and Korea. The objectives of the study were as follows:

- To experience a cross-cultural collaborative design project, thereby exploring and appreciating the differences and similarities amongst cultures relevant to the area of study;
- To establish electronic database for Asian cultures and lifestyles in related areas;
- To explore the possibility of allowing Asian culture and lifestyle to become an important element for future regional/global design development;
- To establish the design process and related methodologies relevant for the study;
- To define and explore design opportunities in Asian cultural identity with relation to people’s relevant activities in the selected areas.

The research subjects were the middle-class families of Beijing and Hong Kong of China, Japan, and Korea. The study looked at people – their lifestyle, habits, behaviours and preferences in eating/dining. Information probing methods were based on the understanding of the typical “users-tasks-environments” relationship, in which the “tasks” were food preparation, cooking and consumption. User-oriented methods were employed to collect and analyse information necessary for comparison and design explorations. These methods included family visits, interview, video ethnography, observational camera, user-diary, photo diaries, site visit, and shadow tracking – “one-day in the life of a middle-class family”.

Experimental designs based on local needs and desires were subsequently proposed for selected situations and projected scenarios. The project has taken 12 months in 2004 to complete among the four universities. The students and faculty members of the universities have worked jointly in a remote manner, yet shared common methodology and assigned themes through computer net-working (Diagram 1) and physical workshops. Two of such workshops held in Hong Kong have brought all participants together to meet and to share information/views and design proposals. The opportunity allowed findings comparison, which has suggested cultural differences and similarities for indigenous designs and potential business to develop. The academic objectives as stated above have also been achieved to a great extent.

**Keywords:** *Asian Life-style, Culinary Habits, Product Design, Methodology*



**Fig. 1:** Project “Chopsticks” website for sharing information/views among participating members.

## 1. The Project

The project is an academic exercise hosted by *School of Design* of The Hong Kong Polytechnic University (PolyU), and facilitated by Hong Kong Design Centre (HKDC). The Participating Institutions are: *Department of Industrial Design* of Korea Advanced Institute of Science and Technology (KAIST) Korea; *Systemdesign Studio* in Academy of Arts and Design, Tsinghua University (Tsinghua) PRC; *Institute of Art and Design* of Tsukuba University (Tsukuba) Japan. Gold Peak Industries (Holdings) Ltd. has kindly offered the sponsorship.

The project is thus a cross-cultural research exercise. It is aimed at understanding people, in terms of users, of different cultures in their daily habits, behaviours and lifestyle in food preparation and consumption at the domestic level. The subjects of research were a number of middle-class families in selected Asian countries and regions: Beijing and Hong Kong of PRC, Japan and Korea.

## 2. The Rationale

Liu<sup>1</sup> (2003) suggests that in Design, “matters/issues”<sup>2</sup> always come first. They then encourage the emergence of objects/artifacts/systems. “Matters/issues” are the overall external factors, which shape, determine and confine the man-made objects. The theory puts the “human-based” concept into the research of people’s intrinsic requirement, and, through analysis of the change of state in the behavioural process of various user groups, positions the different requirements caused by those external factors. It addresses the issue of cultural understanding, which Hall<sup>3</sup> (1966) suggests mainly “lies hidden”. This is agreed by Lee<sup>4</sup> (2003) who queried the “myopic definition of culture” in Design fields, and thus structured the “culture” for Design into multi-layers: the visible and tangible “artifact” lies on top; in the middle there is the “value” that obviously exists and yet is sometimes difficult to verbalize; finally there are the subconscious “basic assumptions” which are normally taken for granted. The last layer is a deep-hidden one to which culture attributes. The intrinsic requirement of people (e.g. conscious and subconscious needs), the invisible part of cultures (for instance, the cognition and emotion) in Design, all require thorough tools and methods to fully analyse and understand; only then could this “hidden dimension”<sup>5</sup> be utilized to create original, meaningful designs. It is believed that the rich and colourful traditions of Asian cultures, if understood properly, could give rise to **new opportunities in design and business** in the new era.

### 2.1 The Cultural Issues

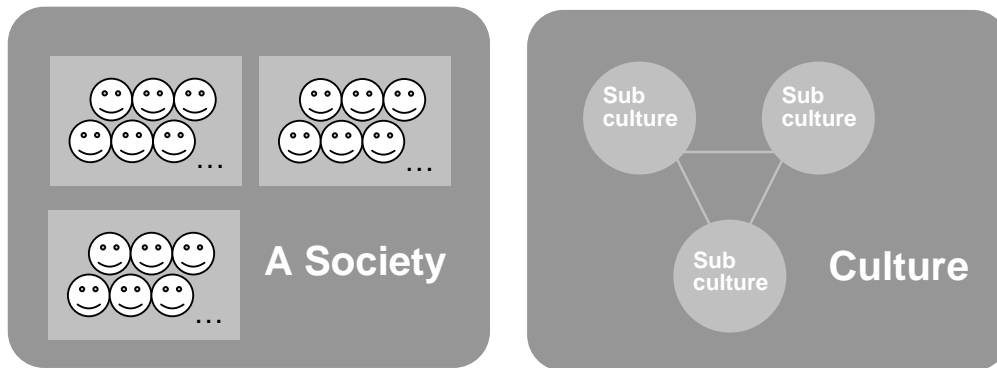
When “culture” is mentioned, people and environment are brought into consideration in parallel as the other two key elements (McKenzie<sup>6</sup> 2003; O’Hagan<sup>7</sup> 2001; Hall<sup>8</sup> 1990). “People” refers to all that falls under the same domestic social-economic structure, while “environment” refers to the surroundings the above people interact with. Among the many approaches to the definition of culture, the anthropologists’ is the most comprehensive as a total measure of mankind aspects. They regard culture as a holistic study of humankind – its origins, development, social and political organizations, religions, languages, art and artifacts. Sociologists instead focus on the aspects of the changes of economy, politics and living manners of the environment, whereas psychologists see culture as non-genetic codes from social and physical environment that form people’s specific manner of living.

Hence, to understand a culture, the way is to understand the people of that culture by studying their behaviour, manner of living and how they react with their environment. Alternatively, understanding a culture of a particular environment can also lead to understanding the people living in it: their beliefs, their behaviour, their living practice and habit. Culture is thus a set of values evolved by a group of people living in the society to shape the society with specific characteristics, identities, attitudes and behaviours; it could be conscious and subconscious to those within in the society.

These values, including customs/rituals, concepts, beliefs, notions and habits, come from the social and physical environments. Gradually they infuse into people’s lives through the process of learning and training. They become regular living practices, with some more noticeable than others.

## 2.2 Sub-culture in Society

A society can have different sub-cultures because it is made up of people who may come from different origins to aggregate at the same place. These people bear different value systems and influence each other to shape a specific culture for the society. To realize that a culture exists, there must be the other culture existing at the same time in the same environment for comparison. Culture in China is obviously different from culture in United Kingdom. But Beijing Chinese culture differs, too, from that in Hong Kong because of different historical and geographical influences on the people (Diagram 2).



**Fig. 2:** Sub-cultures in a Society

## 3. Subjects in Research

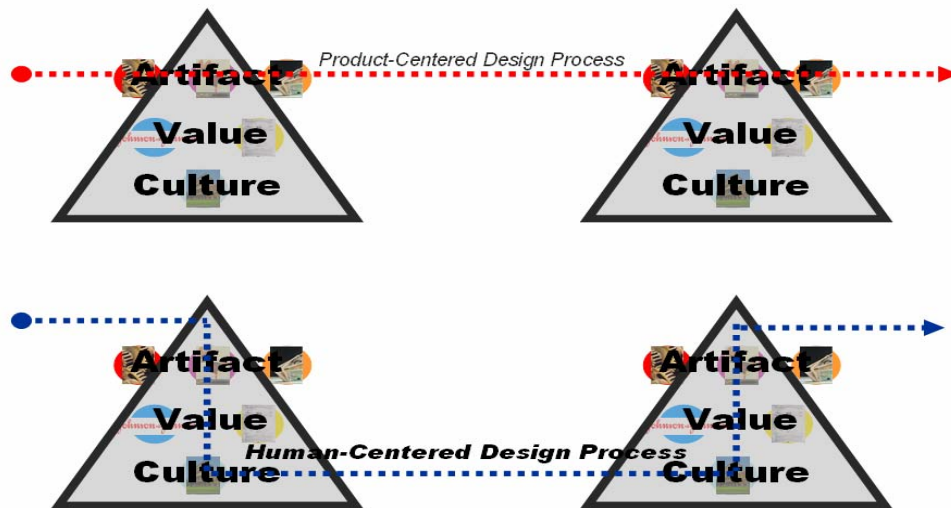
Middle-class families: There were 8-10 young “middle-class” families (*defined according to different country/region*) in the participation institution’s hometown as samples for the study, in terms of people, families – lifestyles, physiological, psychological, cultural, social, demographic issues; habits – in particular eating/dining habits, preferences, behaviours, etc.).

**Table 1:** Common characteristics of selected Middle-class Families in Beijing (BJ) & Hong Kong (HK) of PRC, Japan (JP) and Korea (KR)

<b>Family: Family members under one roof</b>	<b>BJ</b>	<b>HK</b>	<b>JP</b>	<b>KR</b>	<b>Remarks</b>
Family structure: Husband, wife, son and or daughter.	Yes	Yes	Yes	Yes	
Average age range of man and wife: 40-50	Yes	Yes	Yes	Yes	
Children in school	Yes	Yes	Yes	Yes	
Education of main member: Professional, or with Tertiary Education or above.	Yes	Yes	Yes	Yes	
Regular average income.	Yes	Yes	Yes	Yes	In reference to local cost of living.
Affordability to spend (food, leisure & entertainment, traveling, continuous education).	Yes	Yes	Yes	Yes	Families with greater exposure, tend to be more sociable and they entertain guest more frequently at home.
Possession of one or more properties, investments, with reasonable savings.	Yes	Yes	Yes	Yes	
Domestic helper employed.	Yes	Yes	---	---	Unusual in middle-class families of JP, KR.
Small household area thus tight space in dining room and kitchen	Yes	Yes	Yes	Yes	Problem to entertain guest at home.
Attitude toward foods – time saving yet health conscious.	Yes	Yes	Yes	Yes	Except during week-ends.
Tendency to improve living space & related domestic equipment/facilities.	Yes	Yes	Yes	Yes	For quality of life and for socialization.

#### 4. Methodology & Process

The initial focus of the Research Project is on “**food preparation and consumption**” for daily living (*ordinary weekdays and weekends as opposed to, e.g. festive seasons*) in “middle-class” families. Information probing methods were primarily based on the understanding of the typical basic “**users-tasks-environments**” relationship, in which “tasks” stand for food preparation, cooking and consumption. Based on the suggestion from KAIST, all participating universities have generally taken the approach to avoid ordinary product-centred design process, and adhered to the **culture-centred method** (see Diagram 3), which is seen equivalent to the “Human-centred Design Process”, yielding more complete data to support design exploration. (It was believed that this method would deal more than merely with objects/artifacts, and would allow designer to draw from cultural materials and related information to address to the more holistic perspective of design for people).



**Fig. 3:** Ordinary Product-centred Design Process (on top) vs Culture-centred Method (below), which was preferred in this study. (Source: Lee 2003)

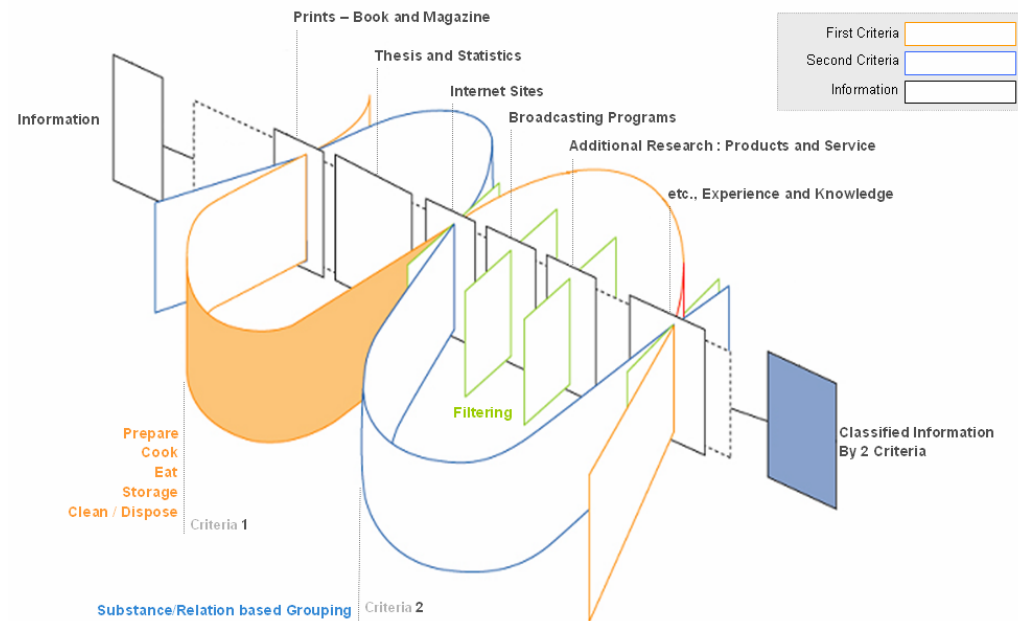
#### 4.1 Working Procedures

The exercise began in early 2004 and lasted until the end of the same year. The research teams were made up of students at postgraduate/undergraduate level and Research personnel. A Cyber workplace was set up for dialogue among the institutions. Experience, data sharing and common terminologies were discussed. Three workshops were arranged in Hong Kong for all participants to share views, approach and findings across the institutions: The final two workshops (in July and November 2004) provided opportunities for the four universities to exchange cultural perspectives on food consuming attitudes, dining habits and related design issues. It also established a solid foundation for the Project's future development towards extending the role of Asia culture and lifestyle in the global design platform.

#### 4.2 Secondary Research

It was mainly a desktop research from books, magazines, newspapers, journals, radio/TV broadcasting, websites, etc to inform project direction. Several steps were included (see Diagram 4):

- Topic identification and finding of keywords.
- Search of desktop data.
- Information classification.
- Structuring information according to applications.
- Extraction of key points as guidelines for primary data probing.



**Fig. 4:** Overview of the Secondary Research Process (Source: KAIST for Project “Chopsticks”)

### 4.3 Primary Research

All participating universities shared the following methods (see Diagram 5&6) except in the case of “video ethnography” which has been made possible only by KAIST through negotiation with the subject families:

- Defining target user group.
- Definition of “Middle-class Family”.
- Research method selection and planning (Questionnaire, Home visit, Shadowing, Video Ethnography, User Diary, Experts Interview, Focus Group Interview).
- Analysis of results.
- Interpretation of results for design scenario development.
- Design explorations.
- Analysis of results.
- Interpretation of results for design scenario development.
- Design exploration.

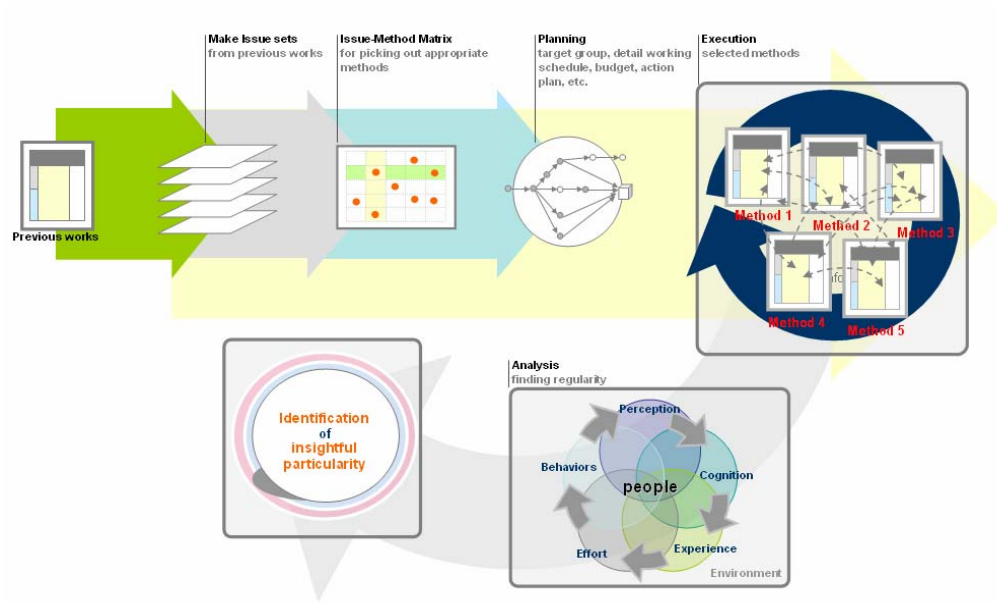


Fig. 5: Guidelines for Primary Data Search (Source: KAIST for Project “Chopsticks”)

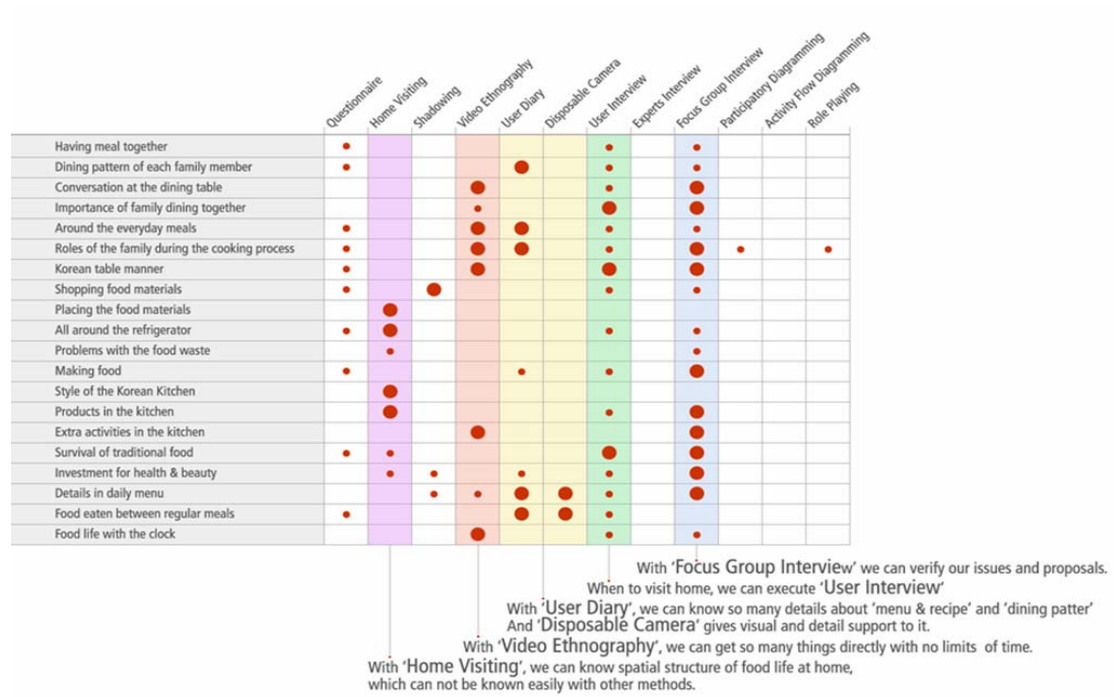


Fig. 6: Selection of User-oriented Research Methods. (Source: KAIST for Project “Chopsticks”)



## 5. The Findings and Discussions

### 5.1 The Cultural differences and Similarities

This project looked at the cultural similarities and differences in food habits among the four different cultures (Hong Kong and Beijing Chinese, Korean and Japanese). Cultural differences lead to different habits, beliefs and therefore differences in the design of implements and ways of using them. For instance, the chopsticks in the four cultures have a common application of picking up chopped foods, but they vary in the proper handling and in how they should be used (for table manner), and thus also in the detailed designs. The length of the Chinese chopsticks is longer than those in Korea and Japan. The reason is that the Chinese sit together to dine and share several dishes which are placed in the middle of dining table at the same time, as opposed to each individual having his/her own food set. A longer pair of chopsticks enables easier pickup of foods. The length also helps when serving (a Chinese way to serve) guests who might be sitting at the other end of the dining table. Japanese chopsticks narrow along the shaft from one end to other end, which becomes a pointed tip. It is not for piercing foods but for picking up small food items that could be as small as sesame seeds. Chinese chopsticks have bigger, blunt tips which help the user push rice into mouth. The Korean and Japanese traditional table manner does not encourage that to happen, while it is perfectly fine in Chinese culture. The Chinese rice bowl design also supports the latter – with the smooth flair rim edge for lips: rice can be more readily sent into mouth. The foot-ring of the bowl in China and Japan facilitates the secure grip by fingers. Yet in Korea, rice bowl does not have a foot-ring, it is because holding bowl in hand is discouraged.

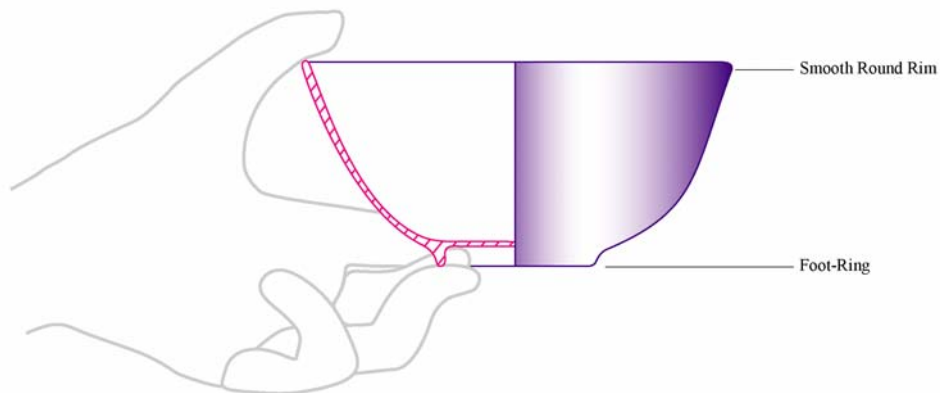


**Fig. 7:** Different chopsticks – From top to bottom: HK Chinese, Korean, Chinese-luxurious, Japanese. (Source: PolyU for Project “Chopsticks”)



**Fig. 8:** The proper Chinese way of putting rice into mouth – hold the bowl in hand and rake the rice into mouth with chopsticks. (Source: PolyU for Project “Chopsticks”)

#### HOLDING A CHINESE BOWL



**Fig. 9:** Holding the Chinese rice bowl in hand. (Source: PolyU for Project “Chopsticks”)

We have, however, placed more emphasis on the similarities rather than the differences. Through these similarities, we believe that the common themes of development areas could be made possible.

The secondary information search and analysis among the four design teams thus informed these common issues for primary data study:

1. Food as “family relation enhancer”.
2. Food for health and beauty.
3. Menu & recipe for pleasure, enjoyment and entertaining.
4. Kitchen for efficiency and convenience; for user-friendliness with updated technology; for eco-friendliness with “green” concern; for “lifestyle expression”.
5. Re-discovery of tradition.
6. Re-think of “kitchen process”.

The above are important for primary data probing, which has informed the design explorations in the following four themes:

1. From menu preparation to shopping.
2. From cleaning/preparing of food ingredients to cooking.
3. From table-setting to Serving/storing and dining.
4. From clean-up to storage of foods and foods waste disposal.

## 5.2 The Primary Information

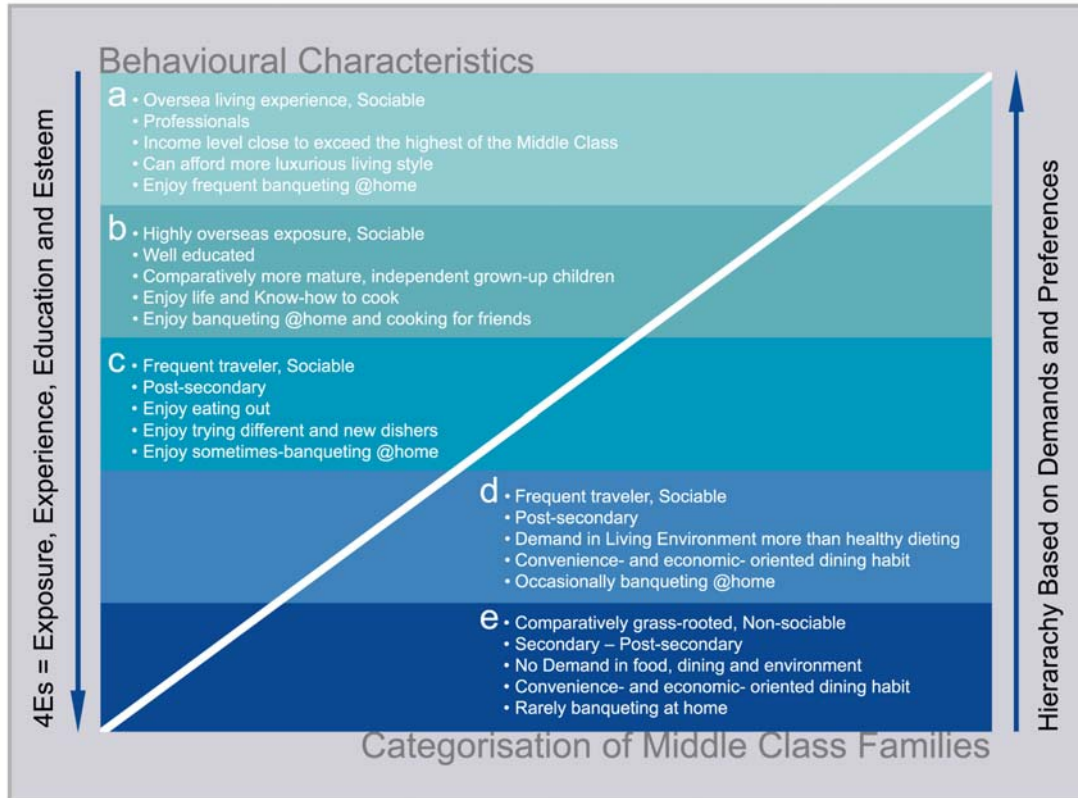
About 40 families were visited. Each participating university research team visited about 10 sample families in its own city/region. We admit that the sample number is not extensive enough to yield more accurate data. But the depth of study through the proposed methods of understanding users did make good suggestions to probe scenarios and to encourage design explorations which then followed.

The primary results from the Hong Kong team suggested that the middle-class families could be stratified into 5 layers according to their **education, exposure, experience and esteem** (4Es). Their demand and preference for quality of living move them up in the chart of Table 2, on being pushed<sup>9</sup> by the 4Es.

According to the other teams, the middle-class families in Beijing, Korea and Japan do share similar situations, and therefore these were taken as the commonalities in the middle-class families across the 4 cities/regions:

- Professional with stable income.
- Received tertiary education either locally or in overseas.
- Have knowledge assisting the development of entrepreneurship.
- Mostly live in self-contained private housing.
- Have one or more investment.
- Care about own future development.
- Lead balanced life of living: care about health, yet work hard, learn hard and **care about quality of life**.
- Being regarded crucial for sustainable development and stability of the society.

**Table 2:** Hong Kong Middle-class Families (Source: PolyU for Project “Chopsticks”)



### 5.3 The Change of Dining Habits

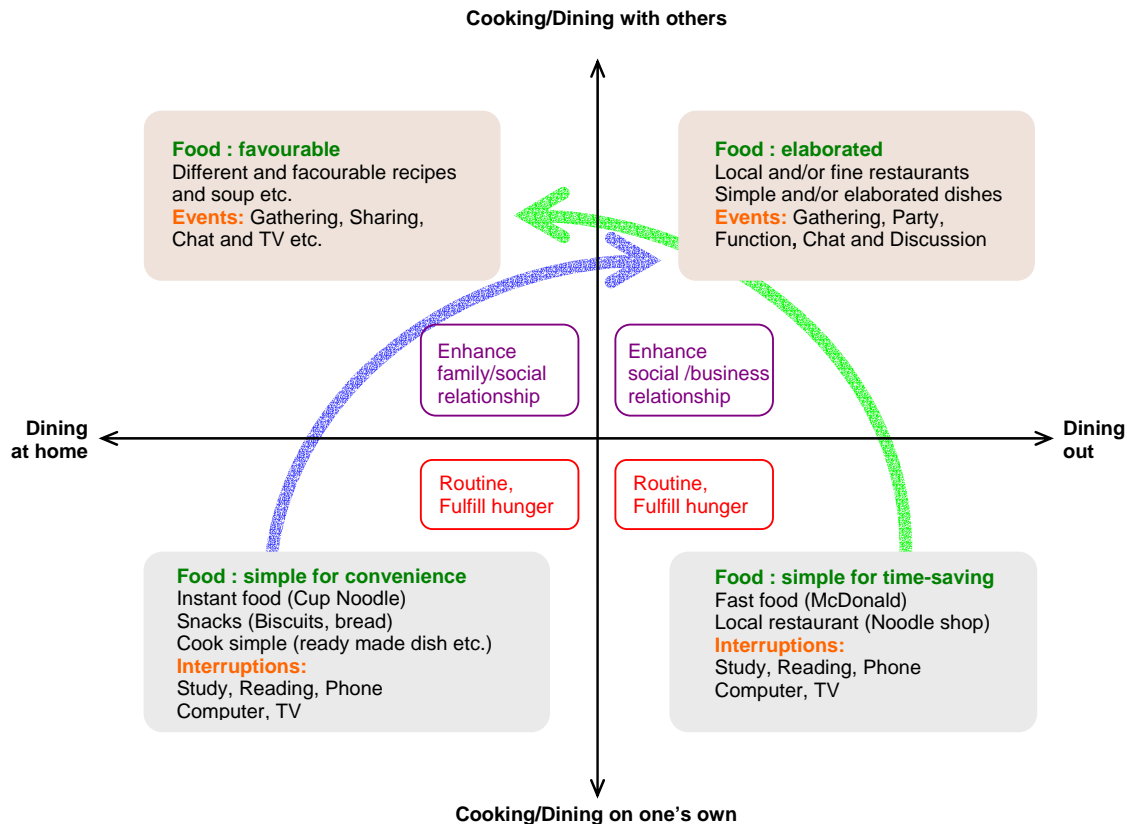
The middle-class family members are busy people. They are used to work hard and enjoy little. But today, the middle-classes are all conscious of quality of life. Dining has become an important and significant activity to enhance good living. “Dining”, as the research subjects (families) have often referred to, is not merely eating but include the following experiences in processes (often together with family members/friends for fun and communication):

- From menu preparation to shopping.
- From cleaning/preparing of food ingredients to cooking.
- From table-setting to Serving/storing and dining.
- From clean-up to storage of foods and foods waste disposal.

These are carried out during free time of the week such as week-ends, or holidays when they do not see work as duty tasks. On week days, meals are prepared and served normally in an informal manner to save time and effort. In the four regions of study, inviting friends to have meals at home is not common. It is because their homes are normally tight in space. The younger middle-class generation, however, sees gathering at home an enjoyable event as an alternative to socializing in places such as pubs and restaurants. This view point indicated the need of a new development of systems/facilities for cooking/living/dining – food habits at domestic level. The following chart shows two tendencies of dining habits in such a development:

- **Busy weekdays:** Family members dine at different times at home or in restaurants, simple food is preferred to save time and effort.
- **Relaxed week-ends/holidays:** More elaborated food could be the choice, and family members are prepared to get involved in the food preparation process, at home or in restaurants (preferably “good” ones, and the ones which could provide them with new experience in food habits).

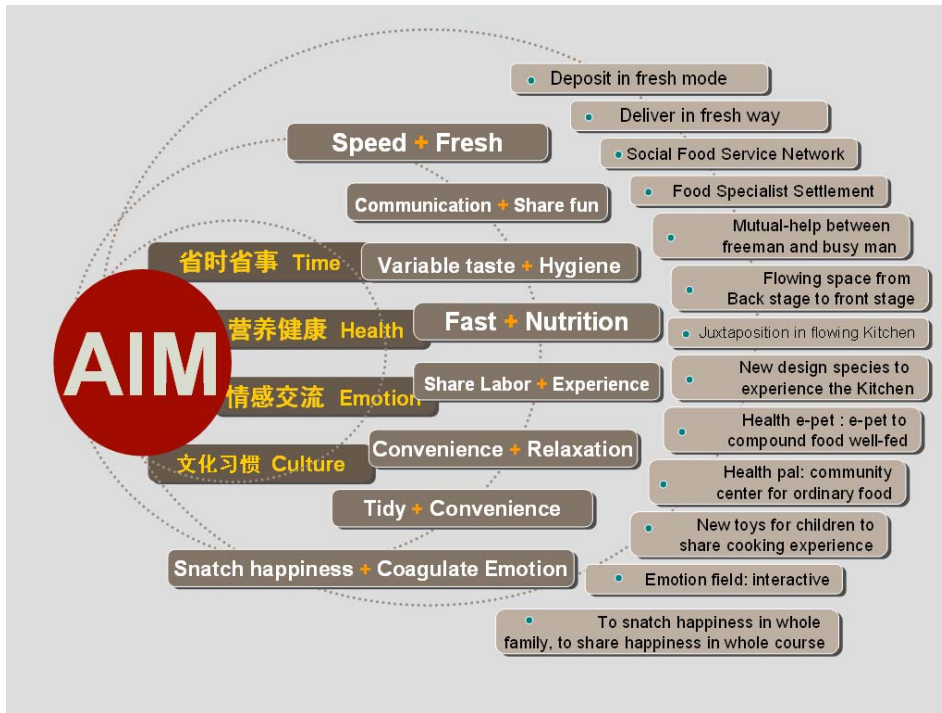
Dining out and eating at home will not replace one or another. Both preferences would remain and in fact they may become more related in future.



**Fig. 10:** Live-style pattern in Dining Habits (Source: PolyU for Project “Chopsticks”)

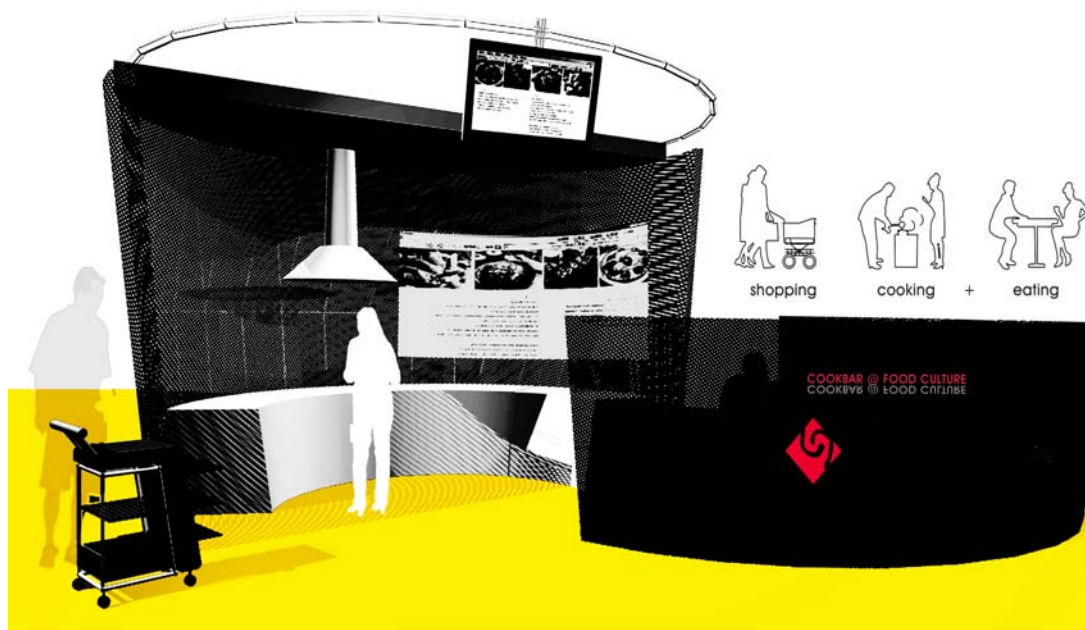
#### 5.4 The Design Attributes

The research teams looked at the contexts of people, tasks and environments, and concluded that in the process of food stuff purchase, preparation, dining and cleaning, there were four aspects (attributes to design) worth to pay attention to: (1) time saving and convenience; (2) health and nutrition; (3) human feelings communication and (4) opportunity for exchange of culture. They were identified as the common issues in the primary information stage and thus the foundation for the design explorations under this topic of research. The chart (Diagram 11) from Tsinghua illustrated well the relationship between the contexts and the attributes.



**Fig. 11:** Design Attributes as Guidelines for Explorations (Source: Tsinghua for Project “Chopsticks”)

The Tsinghua team gave an example based on the above. They called it the “Cook-bar” for loaded modern Chinese.



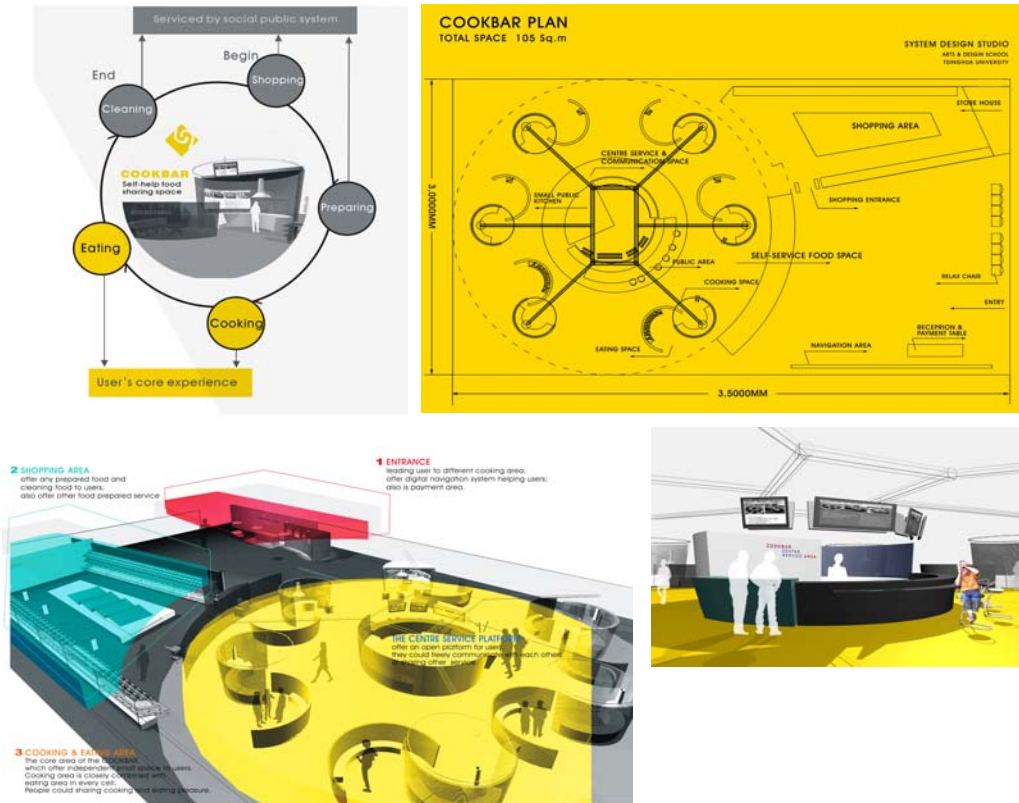
**Fig. 12:** A one-stop self-service food shopping/preparation/dinning/servicing system for busy middle-class families. Theme: From cleaning/preparing of food ingredients to cooking. (Source: Tsinghua for Project “Chopsticks”)

There are two aims: Firstly, to create a new-style of “food” service, which attempts to solve the problem that busy middle-class have limited time and energy to go through time-consuming “food” process. At the same time, the new service system encourages users to enjoy good food preparation/eating experience based on present technologies. Secondly, it creates a new communication platform based on self-service space for food, which would promote communication among people. There is also the hope to retain traditional Chinese food culture spirit while developing new form of possibility for busy Chinese of nowadays.

Most families of middle class in Beijing enjoy Chinese traditional food, yet they have to abandon the interesting experience of “traditional” food culture and simplify it into only “eating” in their busy life. More people today are sentimentally attached to the taste of traditional Chinese food and cooking pleasure. “Cookbar” provides them with such chance. This design is mainly for busy middle class families: Firstly, to create a new-style of “food” service, which allows quick access to the complicated “food” process. The new service system encourages users to enjoy shopping, cooking and eating experience based on advanced digital-service system. Secondly, it creates a platform, which promotes fun and communication between users. The design has great difference from traditional restaurant. From shopping to sharing cooking and eating is the core part of the “experience” design. Preparing food and cleaning are services to be provided.



**Fig. 13:** The system enables busy people to enjoy food shopping/guided cooking/dining, while tedious work like preparations and clean-ups are being serviced. (Source: Tsinghua for Project “Chopsticks”)



**Fig. 13b** (cont'd): The system enables busy people to enjoy food shopping/guided cooking/dining, while tedious work like preparations and clean-ups are being serviced. (Source: Tsinghua for Project “Chopsticks”)

## 6. More Examples of the Design Explorations

There were 24 design explorations from the four research teams addressing the themes from recipe preparation up to food waste treatment. Based on the user research methods, identification of implicit and yet insightful particularities were detected and analyzed. The results have led to every project exercise bringing cultural elements into the formulation of design possibilities and hence business opportunities.



All design explorations contributed to the well-being of users: fun, convenience and quality of living in food/culinary habits. In the projects, the methods of approaching problems were very much similar among the different research teams in the four design schools. However, the Korean team was the only one who has been able to conduct video ethnography in such a way that the family members in kitchens were video-recorded 24-hour to uncover natural behaviours in actual context. Such method was not feasible in the other cultures for the obvious reason of privacy. The design explorations eventually suggested interesting difference in the teams' preference of approach to design issues.



The Korean methods inclined to solve problems with information technology, in support with the user-interaction being emphasized. This is well represented by the “ShoppY” shopping system proposal for efficiency in people-system communication and convenience, its purposes are as follows:

- Organizes all the process of shopping, from list-up to checkout and recording.
- Offers tangible information and communication during shopping.
- Scans the barcode of an item and gets the information.
- Transfer data to other family members, if necessary.



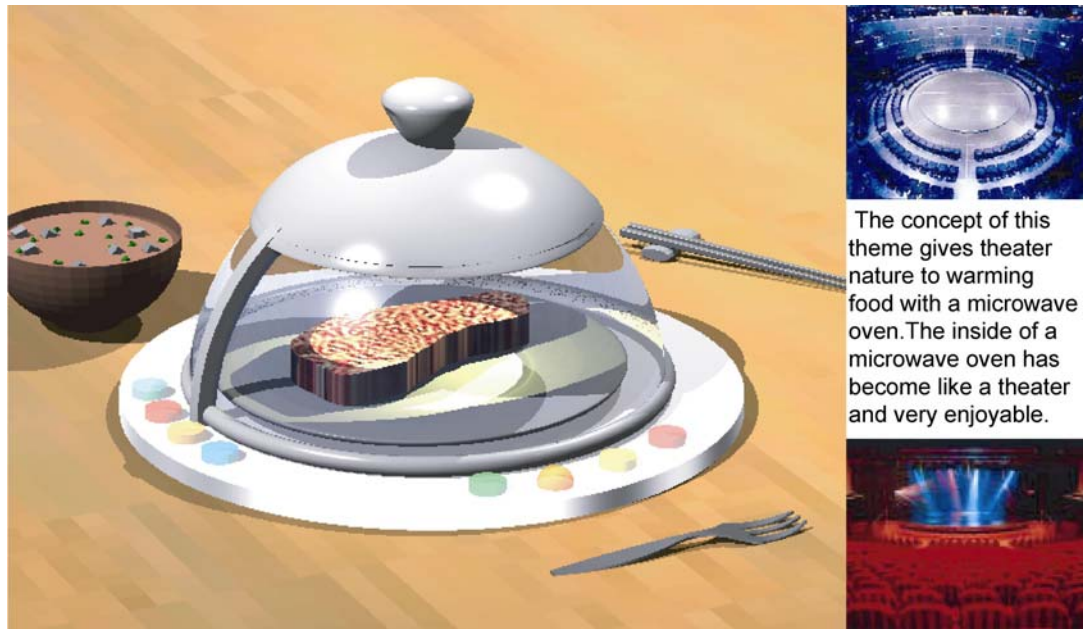
**Fig. 14:** The big device is for the shopping cart, while the small portable version is for user. *Theme: From menu preparation to shopping.* (Source: KAIST for Project “Chopsticks”)

When people shop in Korea, they normally would go to supermarket or discount shop. Recently, online shopping has become easily accessible for every field of market, even food market. Today, there are service providers, who provide ready-made menu or counseling about dietary menu. Usually, Korean housewife does all the shopping. But shopping would be more complete and satisfactory if all the family members participated in the shopping process of list-up, purchase, accounting, and record tallying. Housework needs to be shared with other family members to improve the relationship, even if members aren't at home. For list-up and purchase, it is important to get the list of shopping catalogue clearly. There is too much information in the shop. The shop should offer authentic information, and comparison between different brands of the same products should be easy to carry out. ‘SHOPPY’ proposes two products - Mobile Device and Cart Device in mart. Data such as coupons and sale information are transferred to the mobile device at home. Before shopping, check the shopping list and carrying the mobile device. In mart, mobile device scans the barcode. Then, detailed information is shown on the display and can be transferred to the mobile phone of family member. The detailed information about shopping items is shown on the display of shopping cart device. Checkout is possible by passing the exit. The purchasing information is read and automatically payment is made through the credit-card or bank account. Also detailed payment information is recorded during the checkout.



Fig. 15: The whole system helps recipe planning, shopping, payment and inventory keeping.

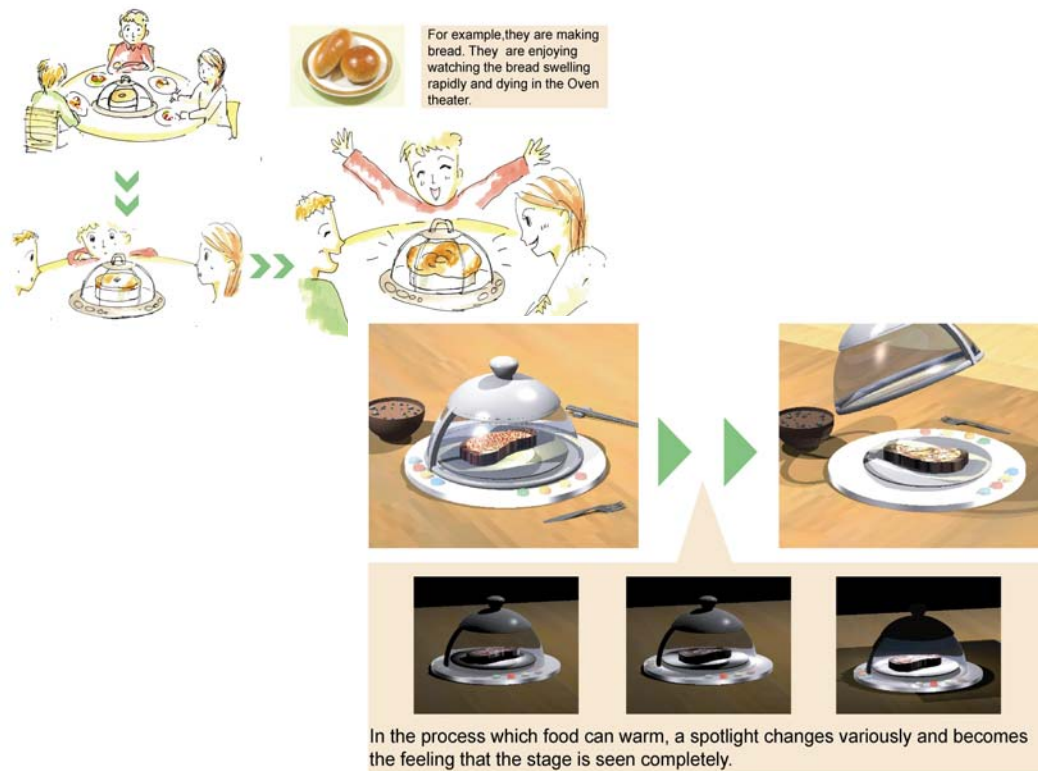
The Japanese team tried to satisfy the user requirements through their philosophical judgment to enhance life quality. The “Oven-theatre” represented one of the outcomes of their argument.



The concept of this theme gives theater nature to warming food with a microwave oven. The inside of a microwave oven has become like a theater and very enjoyable.

**Fig. 16:** Watching cooking is fun! *Theme: From table-setting to Serving/storing and dining.* (Source: Tsukuba for Project “Chopsticks”)

Oven-theatre is a microwave oven that colours people’s eating experience. Technology can help to solve a lot of tiring and troublesome working procedures in the kitchen such as cleaning, cooking, food storage and waste disposal etc. Many kitchen technologies today are mainly focused on providing efficiency and convenience to users, but cooking should be made fun too to people. The design thus aims to enhance family relationship by maintaining the enjoyable spirit of cooking and dining through the application of human technology. Based on related information research, opportunity for all family members to get together to have dinner on weekdays is decreasing. On the contrary, such dinner gatherings on holidays have increased. Although family members may gather to dine, it is no indication of their happiness at mealtime. Such situations have become intensified recently. While survey indicated that many housewives deemed cooking as their hobbies and that they are positive to work like table arrangement, the number of people who fall into this category is comparatively small. It is necessary to find something that could make members of the family have fun while having dinner together on weekends. “Theatre Oven” applies microwave technology. It could be used to heat the food on dining table or people could take it with them everywhere. Heating the food on the table and at the same time, family members can gather together to enjoy the food cooking process and the sharing of dishes. Indirectly, in some way, the Oven is a tool to share members’ feelings. It also become can be an art object which gives colours to the dining table and highlights the food’s flavours. It also appeals to kids because of its easy application.



During the process of cooking, spotlight inside the oven is changed variously like the food is being placed on the theatre.

Conventional oven keeps the distance [relationship!] between the one who is preparing the food and the ones who are waiting to dine.

We want to see the food is being cooked in the microwave oven! I think it's interesting!

The pace of expansion of the exterior type expenditure in a meal

Japanese eating habit has changed a lot because of the frozen food technology. Families use frozen food and precooked food are largely increased in the recent 15 years.

All families enjoy gathering for a table and warming food. Wholly, food can be seen change gradually deliciously. This has the same effect as one-pot dishes peculiar to Asia.

- The place which is reflected and emits an electric wave and infrared rays
- Glass which reflects an electric wave
- The spotlight of various kinds
- Operation button

Fig. 17: Cooking can be fun for all family members to share, instead of merely work for housewife.

The Chinese teams tend to be pragmatic. The Beijing group held the view that there is perhaps little need of high technology for solving design problems in their case. What may be more important would be the strategic application and management of design and related techniques to tackle human issues/needs. The “Cookbar”, as has been described earlier (paragraph “5.4 The Design Attributes”, pp.14-16), is a one-stop self-service food shopping/preparation/dinning system that has well illustrated the point.

The Hong Kong Chinese team believed in the innovative application of appropriate and immediately available technology to meet existing needs. The “dried seafood storage” that employs “Peltier” cooling and induction charging, explained the argument.



**Fig. 18:** A storage system for expensive dried sea-foods, which family may be proud to show. Theme: From clean-up to storage of foods and foods waste disposal. (Source: PolyU for Project “Chopsticks”)

Dried seafood storage is a new storage system for expensive dry sea-foods. The upper echelon of Hong Kong middle-class families consumes many dried sea-foods\*, most of which are considered very fine food by the locals. People usually purchase in bulk, at negotiated prices during the suitable seasons. Long term storage of the bought food stuff, which could be in terms of months/years, would be a problem. The preservation/storage is normally the job of ordinary air-tight jars or the refrigerator. The former method requires the food contents to be put under sunlight regularly to get rid of molds and excessive humidity. The latter keeps food too cold and tends to dehydrate much water content, causing change of the food quality. There should be a controlled storage environment for the better preservation of the dried sea-foods. Dry sea-foods should be kept in air-tight environment at a moderate temperature of 15-20 degree C, with 50-60% humidity. An air-tight container system with poor conductor (e.g. glass, single or double-sided walls) as wall materials. The “cool-dry” storage environment is controlled by the “Peltier” electronic heat pump, electrically driven by the wireless DC “induction” charging. (Note the cross-section of the lid for cooling, in figure at middle of next page.)

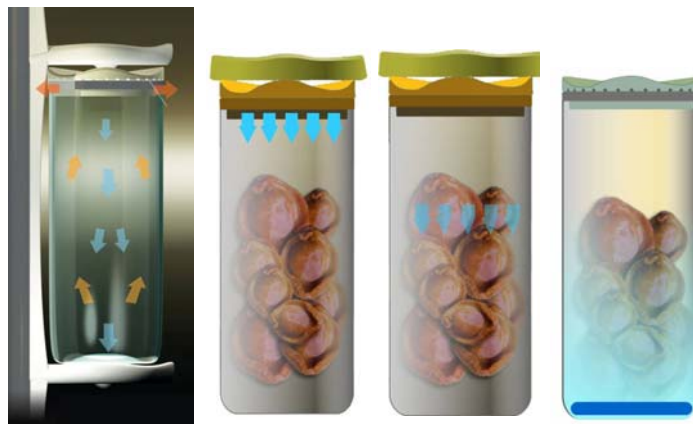
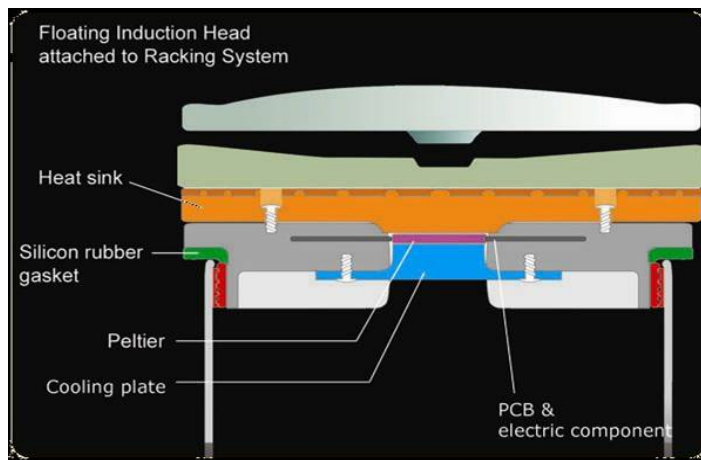
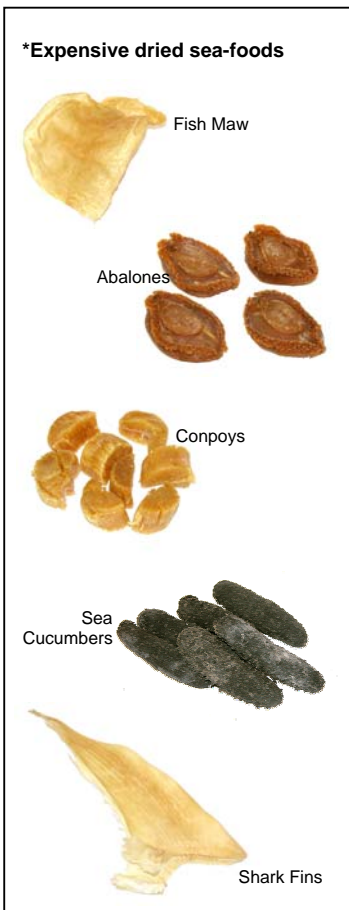


Diagram indicates the heat dissipation and air flow after relocating the glass container back to the stand.

**Fig. 19:** The technologies employed are existing versions, which are affordable by local SMEs.

## **7. Conclusions and Suggestions**

The exploration of Asian cultural issues in Design has contributed significantly to innovative ideas and revolutionary concepts which may in turn lead to the emergence of products/systems that could be shared among potential users of the many Asian cultures. The cross-cultural elements among the design outcomes are apparent and it is suggested that a further comparison exercise would be beneficial to any future related study.

As a collaborative academic exercise, the project added value by structuring an environment for the participants to look in greater depth at their own culture in comparison to others'. The project allowed sharing of varied views/opinions from different cultures, thereby provoking and stimulating thoughts and awareness for the topic of investigation. The complications in planning, management and control of the exercise were offset by the added academic values. The project has proven that international collaboration of this scale is not only possible but beneficial, in particular to helping to create a critical mass of academic interest for general Asian cultural issues in Design.

Another area of interest brought to attention by this study is the potential impact Asian culture and lifestyle may have on future regional/global design applications. Exploring this topic further would be the next step after the conclusion of this project.

## REFERENCES & NOTES

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- <sup>1</sup> LIU Guanzhong, 2003. In “**Culture, Design & Lifestyle**” Forum, Business of Design Week 2003. Hong Kong: HK Design Centre.
- <sup>2</sup> Liu developed the theory and methodology, which he termed “Affairology”.
- <sup>3</sup> HALL, Edward T., 1966. *The Hidden Dimension*. p. 188. (Original publication: Doubleday 1966). NY: Anchor Books edition 1990.
- <sup>4</sup> LEE Kun-Pyo, 2003. “**Understanding Cultural effects on Human Interactions with Design**”. Business of Design Week 2003. Hong Kong: HK Design Centre.
- <sup>5</sup> A term coined by Hall in his book: *The Hidden Dimension* (1966). See Note 2.
- <sup>6</sup> MCKENZIE, Wark, 2003. *Meanings of Culture*. <http://hsc.csu.edu.au/pta/scansw/culture.html>.
- <sup>7</sup> O’HAGAN, Kieran, 2001. *Cultural Competence in the Caring Professions: Towards Definition of Culture and Cultural Identity*. pp.27 – 43. London: Jessica Kingsley Publishers.
- <sup>8</sup> HALL, Edward T., 1990. *Silent Language*. New York: Anchor Books.
- <sup>9</sup> The middle-class families, by observation and from data analysis, varied in terms of their dining preferences, attitudes and habits. This was the result attributed from their previous cultural influences which primarily came from parents, peer groups, education and experiences. Based on such influences, different beliefs, behaviour and habits were developed and all these formed special attitude in food preference for different families. Thus, specific background and dining habit were shaped. The HK team divided the middle-class families into 5 groups: A, B, C, D and E. According to the aspects of each group and in reference to the concept “Hierarchy of Needs” argued by a group of sociologists and psychologists such as Abraham H. MASLOW. A pyramidal graph (Table 2) was formulated to reflect characteristics about the families’ specific dining habits and preferences (which covered shopping for food, preparing meals, dining as well as after-meal-cleaning and related activities, e.g. storing of left-over food, disposal of food waste). Comparatively, families in Category “E” have less demands and preferences of dining than those in “A”. But on the other hand, “A” had higher level of the 4Es than “B”. The lower the levels in the “pyramid”, the more families match the criteria in the category. *The 4Es: “Exposure” that could be resulting from local/oversea experience, commercial/personal liaison contacts and activities such as club-membership; “Experience” which could be from living, traveling and/or working; “Education” could be academic and/or self-educated; “Esteem”, for example, could be attributed from the specialty in jobs.*