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Published in:
Proceedings of the 1st International Conference on Designing Food and Designing For Food, ICDFDFF, June 28-29, 2012, London, UK

Published: 01/01/2012

Document Version
Publisher’s PDF, also known as Version of Record (includes final page, issue and volume numbers)

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Download date: 21. Dec. 2018
Applying intercultural markers obtained from cooking in the design process

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Abstract

In post-modern society industrial design has lost many of its cultural values as products are directed to a global market and everybody can understand and use them in the same way. In contrast to the globalization of design, cooking is an activity that is very much embedded in culture. Cooking attracts and polarizes people; ingredients and tools are context dependent. Traditional cooking is very much influenced by the availability of local ingredients and the preparation methods influenced by the local context and climate.

This paper argues for a more experience-based design, where the designer and place influence the design of a product, system or related service. It elaborates on the concept of cultural markers, which are those elements that are most prevalent, and possibly preferred within a particular cultural group (Barber & Badre, 1998). In addition it discusses how designers can be inspired by cultural values obtained through a process of cooking and how they could translate these values or qualities in the design of culturally identified products for a cooking context.

An exploration was conducted with nine groups of three or four Industrial Design master students representing different cultures (Cantonese, Czech, Italian, Japanese, Mandarin, Spanish, Surinamese and Taiwanese) as well as the Dutch culture. Students representing the foreign culture prepared a meal according to their traditional customs. The process was observed from multiple perspectives, i.e. one of the local students explored the process first hand by preparing the meal together with the foreign student whilst the third member was an objective observer. During the process the foreign student pointed out the markers that were of importance to their culture, while the local student pointed out the concepts that he or she found most remarkable from the cooking experience. The overlapping observations regarding cultural markers and salient aspects where consequently employed to inspire the further design process. Through an iterative design process, each group designed a tool that would allow applying the most outstanding cultural marker, the intercultural marker, from the other culture in the local cooking culture.

The proposed process yielded various products that supported the local cooking tradition but clearly represented the cultural markers previously defined by the students. The most remarkable observation regarding this exploration was that the designers experienced cooking as a means to learn from and reflect on each other’s cultures. In addition a culturally embedded activity such as cooking allowed them to design products respecting the values of the other culture. Thus, going through a cooking process together with a person of a different culture can support designers in exploring various inspirational techniques that consequently serve as inspiration for a culturally inspired design.

Keywords: Intercultural Markers, Cooking, Design Process, Co-reflection, Different perspectives, Making
Introduction

In post-modern society, industrial design has lost many of its cultural values as products are directed to a global market where everybody should understand and use them in the same way. Globalization in design can be observed in the exchange of design, manufacturing and market development between companies and design agencies in Asia, Europe and America (Bürdek, 2005). Therefore, products seldom carry the trademark of a specific cultural tradition. The origin of designs is often difficult to differentiate, while a national trademark may in some cases be beneficial for their marketing (Haucap, Wey & Barmbold, 1998).

Cross-cultural differences are becoming increasingly recognized as a factor in the successful adoption of new products in the current globalization of the marketplace (Lee & Harada, 2000). Therefore, designers need to consider the role of culture in design and to develop methods and processes for taking cultural aspects into account when designing new products. Various studies address the cultural effects of cooking (De Leur, Drukker, Christiaans & De Rijk, 2006) and eating (Zampollo, Wansink, Kniffin, Shimizu & Omori, 2011) on design. In this paper we discuss how designers can obtain cultural insights from cooking and eating to inspire their designs.

Eating and culture

In contrast to the globalization of design, eating and cooking are activities that are very much embedded in culture (Mennell, Murcott & Van Otterloo, 1992). Culture is perhaps the most obvious influence on food preferences and choice. It has strong historical antecedents, rooted in unique combinations of environment, e.g. in the Mediterranean climate the presence of olive trees favours the use of olive oil versus the use of butter in northern European countries due to the large availability of pastures. Secondly, it addresses rituals and belief systems, e.g. the catholic opposition towards Jewish and Islamic religion in the early renaissance Spain increased the consumption of various types of cured pork meat. Thirdly, the community and family structure, human endeavour, mobility, are of relevance e.g. in Spain, which was conquered by the Northern-African Muslims in the 8th century, the Islamic influence can still be observed in the variety of sweets combining honey and almonds, traditionally eaten during Christmas time. Finally, one may consider the economic and political systems, which are integrated in different cuisines (Furst, Connors, Bisogni, Sobal & Winter Falk, 1996).

Research on food and meals focused on dealing with preparation, cooking and eating, both from historical and current viewpoints (Gustafsson, 2004). Food is a major source of pleasure for almost all humans (Rozin, 1998 cited in Pettinger, Holdsworth & Gerber, 2006) and is known to play an essential role in strengthening social ties in Southern Europe (Volatier, 1995 cited in Pettinger et al., 2006). But, while in France the kitchen has been described as a room where everyone meets and lives together (Volatier, 1995 cited in Pettinger et al., 2006), in England, many may just regard food as a necessity (Wright, Nancarrow, Kwok, 2001; Burnett, 1989). Douglas (cited in Gustafsson, 2004) thinks that food and eating are symbolical parts of a social system and she has studied a British meal in detail, focusing on its structure and composition. Traditional dishes may have special functions and symbolical meanings in certain rituals. Culture also has a major role in determining where and how foods are consumed (Fischler, 1998; Mela, 1999) and food is a way of expressing sociability and hospitality (Fieldhouse, 1996), as mealtimes bring groups together, both physically and symbolically (Mennell, Murcott, van Otterloo, 1992; Marshall, 1995). These culturally embedded concepts may be used to inspire the design of products.
Cooking and design

Cooking and design have a lot in common as cooking is often considered to be a creative process like design is. Many ideas need to be developed before one can come up with the right concept. This can be clearly observed in a quote by master chef Ferrán Adriá “Last year we ran 4,000 tests and only about 300 of them panned out. Everyone learns from his or her mistakes - it's a necessary consequence of being creative. The important thing is to have lots of ideas simmering. Some of these ideas will work, and from these we build our new dishes.” (Hoffman, 2009:267). Food and designs are generally developed along a certain design process or recipe. Both activities require creativity and inspiration to combine ingredients or materials to make something that enhances certain experiences. Furthermore, both processes require various moments of evaluation and reflection through e.g. tasting or confrontation. As cooking is so embedded in culture, and it shows so many similarities with design, cooking may inspire design from a cultural perspective.

Intercultural markers in the design process

In this paper we explore the relationship between design and cooking, and how designers may benefit from engaging in a cultural activity such as cooking while designing with a certain culture in mind. Previous work in the design field addressing culture focused on the use of comparisons, typically involving information gathering about cultural differences through questionnaires or interviews using previously validated and standardized items, to get in-depth insight into cultural differences (Tomico, Karapanos, Levy, Mizutani & Yamanaka, 2009). However, by experiencing a culture through the act of cooking together, designers may learn more about that culture than by taking the aforementioned questionnaires or interviews (Papert, 1991).

We investigated an experienced-based approach to culture in an educational module in which industrial design students had to design a cooking tool for their own culture that would respect the values of another culture. The setup of the module was inspired by various design methods that are used to gain insight into user groups. However, its central theme was to identify cultural markers that would allow for both cultural differentiation and acceptance of a new design. Cultural markers have been defined as design elements and features that are prevalent, and possibly preferred within a particular cultural group (Barber & Badre, 1998). The concept has been explored extensively in the context of web page and interface design (Reinecke & Bernstein, 2011). We take cultural markers as a starting point, but consider which elements are regarded to be most salient when viewed from the perspective of another culture. We define these salient cultural markers, i.e. those elements that are most prevalent, and possibly preferred within a particular cultural group and are considered as surprising and remarkable by another cultural group as intercultural markers.

The intention of this paper is thus to determine whether an experience-based design process will allow the designer and place to influence the design of a product, system or related service. It describes how designers can be inspired by cultural values obtained through a process of cooking and how they could translate these values or qualities in the design of culturally identified products for a cooking context. Finally, it will discuss why the act of cooking can be considered as an excellent topic for student assignments to get a better insight in design processes.

Approach

An exploration of applying the concept of intercultural markers in design was explored in a one-week module at the department of Industrial Design of Eindhoven University of Technology. Two one-week modules were conducted, with a total of nine groups of three or four industrial design master students. The groups consisted of two to three students representing the local Dutch culture and included one
student from a foreign culture (Cantonese, Czech, Italian, Japanese, Mandarin Chinese (twice), Spanish, Surinamese and Taiwanese).

**Process**

During the first day, students representing the foreign culture prepared a meal according to their traditional customs. The process was perceived from multiple perspectives, i.e. one of the local students explored the process first hand by preparing the meal together with the foreign student whilst the third member was an objective observer. In the groups of four the fourth member was responsible for recording the process. Students were requested to observe actions (cooking methods, rituals, etc), locations, ingredients, equipment (utensils, storage, etc) and comments (stories, senses, etc). During the shopping and cooking process the foreign students pointed out the markers that were of importance to their culture, while the local student pointed out the concepts that he or she found most remarkable from the cooking experience. In the evening the teams joined for dinner and the results of the cooking were savoured and discussed. The intention behind the set up of first day was to compare the results coming from different ways to explore in context. The cooking process and reflections from the foreign student could be considered a cultural probe (Gaver, Dunne & Pacenti, 1999) because it shows the execution of a daily activity in first person. A local student helping the foreign student to prepare a meal could be considered a co-experience session (Battarbee, 2003) because both share the activity of cooking. The third member was an objective observer in the tradition of ethnographic observations (Simonsen & Kensing, 1997), documenting the process without intervening.

![Figures 1: Savoury pie prepared according to traditional customs (left) and the same recipe taking into account the Japanese intercultural markers regarding byte size, colour composition (presentation) and prepared at a tranquil pace (right)](image)

The intercultural markers were consequently employed to inspire the cooking process on the second day (see figure 1). During this day the roles switched, and the local student had to prepare a traditional Dutch meal together with the foreign student, while implementing the intercultural markers that had been defined the previous day. This resulted in a first design iteration in context in which the “chef” embodied the to be designed artefact. Again, the results of the cooking were savoured and discussed in the evening. The set up for the second day allowed comparing the information obtained from different ways of ideating in context. One of the Dutch students took the perspective of the “chef” from the foreign culture. This activity can be considered as an emphatic design practice (Koskinen, Battarbee & Mattelmäki, 2003) as they employed the intercultural markers within their own cooking process. The foreign student was in continuous dialogue with the newly assigned chef building up on each others values behind the intercultural markers in the same way it happens in a co-reflective session done in context (Tomico, 2011). The local student that took the observer role could experience what it meant to run a co-design session (Sanders, 2000). The comments and behaviour
of the foreign student helping the Dutch chef were documented and used as requirements for the product to be designed.

Throughout the third and the fourth day the students followed an iterative reflective transformative design process (Hummels & Frens, 2008), to design a tool that would allow applying the most outstanding cultural marker from the other culture in the local cooking culture. This process is characterized by the fact that the designer goes through various cycles of process activities regarding analyzing, making, exploring and envisioning. Each change in activity required the student to reflect on his or her actions (Schön, 1983), the summaries of which were used to evaluate their learning. Tools such as experience prototyping (Buchenau & Fulton Suri, 2000; see figure 2) and sketching were employed in context and finally a working prototype was made that had to be used in context. On day five the final results were presented and tested during a cooking workshop. Consequently, we will discuss the intercultural markers that were defined by the students as well as the concepts that emerged from the design process.

![Figure 2: Experience prototyping experiments by the Japanese group with the traditional Dutch dish, kale with mashed potatoes and smoked sausage to support the design process](image)

**Results**

**Cantonese**

*Identified intercultural markers*

A balanced and varied Cantonese meal consists of a neutral basis (rice) and various plates based on the tastes sour and sweet, sweet and salty. Regularly a small amount of ingredients is used and combined in different plates to achieve the variety in tastes. Another observed marker was the multifunctional use of utensils. The Dutch students found it remarkable that the chopsticks are not only used for eating, but also throughout the cooking process for clutching eggs, stirring vegetables and turning meat in the pan. Hygiene was another remarkable aspect of the Cantonese cooking habits as well as the clear planning and control in the preparation of the dishes. Furthermore, the quality of the ingredients was constantly evaluated and everything was prepared with extreme care. In the discussions care for the family was also as an important component of the Cantonese lifestyle.

*Concept*

The concept developed by the Cantonese group was mainly inspired by the balanced composition of the Cantonese meal. It consisted of a cutting board that is placed over the plate (see figure 3). Ingredients can be slid onto the plate after being cut. A peek hole allows the cook to see what ingredients have already been cut. The chef is stimulated to explore new combinations by turning the cutting board, and combining ingredients on the board with the ones already on the plate through the peek hole.
Czech

Identified intercultural markers

The intercultural markers that were presented after evaluating the cooking and dining process of both the Czech and Dutch traditions were the special attention that was given to hygiene, e.g. the cooking equipment was washed before starting the preparation. Furthermore, the Czech showed a very strict planning and time efficiency while preparing the different courses. Finally, the Dutch students remarked that the Czech have a different approach or use of the same products and tools that are used in The Netherlands e.g. the two spatulas to sweep up the ingredients in the pan, rather than using one to stir.

Concept

The final concept presented by the Czech team is a chopping board and reservoir made out of beech wood (see figure 4). The board has a grid of diagonal lines to guide the fluids of the meat and the water that is left behind after cleansing the ingredients. 81 holes at the end of the diagonal lines serve to drain the water of the board. In addition the grid provides grip to the meat, making it easier to keep everything in place while cutting. At the upper long side of the board a thicker piece of wood provides guidance for the food while sweeping it from the board into a pan. The engravings provide an indication on how to measure one portion of meat without tools. Additional attention is given to hygiene by the fluid canals and by separating the parts that will be used and the parts that have to be disposed of after use. A stricter planning and better time efficiency is provided by the separation of food and garbage offering a better overview on the food.
Italian

Identified intercultural markers

The Italian cuisine distinguishes itself by its high demands on ingredients and preparation such as the use of fresh herbs and complementing ingredients to achieve attractive creations. Furthermore, an important aspect is that cooking is done by intuition, requiring a lot of tasting the food during the process. Finally, a salient marker was the fact that Italian meals are composed of various courses, such as antipasti, primi such as pasta, secondi or main dish and dolci or desert.

Concept

The final product of the Italian group is based on the intercultural marker of tasting the food while cooking. Through their design the students want to motivate and enable the Dutch to taste often while cooking by offering a specialized tool. Because in the Dutch kitchen food is often bulky, the device has a cutting blade specially designed to cut a small portion out of for example a potato or a piece of meatloaf. Because in the Dutch kitchen food is often boiled, the tool has holes to drain the cooking fluids. The shape is such, that it is perceived as a spoon to inform users that it is meant for tasting. Furthermore, the direction of the spoon, which is perpendicular to the handle, suggests how it has to be held in relation to the mouth. By squeezing the handle the blade chops of a piece of food, and when released the blade retracts to a safe position allowing the user to sample the food without the risk of cutting him- or herself.
Japanese

**Identified intercultural markers**

The Japanese groups identified three main and interrelated intercultural markers that all relate to a value that is very important for the Japanese culture, hospitality. The food has to look pleasurable for the guest and easy to consume. Because Japanese people eat with chopsticks, it is important to cut the ingredients in byte size. Also the Japanese portions are smaller compared to the Dutch portions. The way they eat is with more attention and in smaller portions due to the chopsticks. Secondly, while cooking the chef was very calm and had everything planned. Her work was very precise. For example for a dish with burdock and carrot, she measured the carrot, so they would be of the same size as the burdock. The taste also had to be very balanced, for which the different sauces were poured into the pans with great care and sugar was carefully measured. Spoons of different sizes were used to get the right amount of ingredients. Finally, the presentation of the food is also very important. The dishes are prepared and presented with elegance. Already during or even before the cooking they consider how to present the dish. Because the different dishes are presented on separate plates, each dish is presented on their own way. For each dish a plate or bowl is chosen, based on colour and shape, as there has to be a contrast between the plate and the food, to make it look fresher.

![Figure 5: Japanese inspired serving plate for traditional kale with mashed potatoes and smoked sausage](image)

**Concept**

During the exploration small scoops of kale stew were served on a piece of sausage, decorated with bacon and pickle. The kale stew was easier to eat with the chopsticks, because the sausage underneath provided more grip and the size was appropriate for one bite. Also the pieces looked very neat and handled with care, compared to the traditional way of scooping the stew. The concept of the Japanese group is to support the making of this kind of presentation (see figure 5). It consists of a spoon, by which one can make de small scoops of stew. The size of the scoop matches the diameter...
of the smoked sausages. Furthermore, the concept consists of a plate, which is a wooden board with six tapered cylinders on top. The circles are of the exact size of the scoops of stew on the smoked sausage for which they need to be handled with care. On the side of the plate there is room for a small cup can be placed to present the gravy. To decorate the scoops with pickle and bacon one can carefully use the chopsticks. There are two sides to the plate, a light and a dark one to provide the highest contrast between dish and plate.

**Mandarin Chinese 1**

*Identified intercultural markers*

In contrast to the Dutch culture, the Chinese use many dried food and ingredients used throughout the cooking process, the quality of which is judged by the smell. It was remarked that specific ingredients are added to improve the smell of a dish instead of its flavour. It appeared to be a salient aspect of the Chinese preparation to understand the taste of the food by smelling it rather than tasting it throughout the process.

*Concept*

The final concept presented by the first mandarin group consists of an ingredient mixer. The mixer, which is made out of ceramics, can be fixed on regular bowls. It has five tubes in which the dried ingredients can be placed. Tubes can be covered to test and evaluate different combinations of ingredients. As soon as the appropriate combination is found, users can open the sieves on the bottom to let the ingredients flow into the bowl. The tool supports users in smelling the ingredients and combining them in new combinations.

**Mandarin Chinese 2**

*Identified intercultural markers*

Within the second Mandarin Chinese group different markers were observed. First of all a singular use of the stove was remarked, as everything was placed next to each other. In terms of hygiene, everything was washed before it was used. Chinese do not seem to throw anything away, as they seem to be very thrifty when dealing with leftovers and fresh ingredients. Furthermore, as was also observed in the first Mandarin Chinese group a lot of effort was placed in the flavour control with spices. Finally, an important aspect of Chinese culture is to share the food with family and friends, even when still cooking. They need to offer a wide variety of dishes to the guests, and plates are shared in the middle of the table.

*Concept*

In the Dutch culture it is common to stack a large amount of food on ones plate and focus the attention to the plate with little interaction throughout the dinner. The concept developed by the second Mandarin Chinese group aimed to encourage social interaction and more communication during the dinner (see figure 6). The prototype consisted of small plates with a semi spherical bottom. Because the plates are small, diners cannot scoop a large amount of food on their plate and they this encourages them to return to the centre of the table more often. Furthermore, the plates cannot be placed on the table due to the imbalance of the sphere and they need to be held in the hand. Because they can be brought to the mouth, the people dining maintain eye contact, in contrast to the situation in which they focus on the plates, thereby stimulating more interaction and complying with an important Chinese value.
Figure 6: Mandarin Chinese inspired dinner plates that support social interaction while dining pace

Spanish

**Identified intercultural markers**

The Spanish group deducted various cultural markers from the cooking session. First of all many Spanish meals can be prepared from a basic set of ingredients that one should always keep in stock such as olive oil, eggs, potatoes, onions, tomatoes, canned tuna, dried meat etc. These ingredients can be divided into two groups, i.e. products, which may be kept for approximately a month and products that last for over a year. Therefore it is very important to use them in time, as students remarked that it was not accepted to throw away products in the Spanish culture. Therefore, it is very important to know what is in the inventory when buying fresh produce to combine with it. Also, the stock needs to be refilled regularly. Besides this important planning component, cooking by intuition was another aspect that appeared to be salient during the first cooking session.

**Concept**

The product developed by the group that allows people to keep their stock of basic products fresh, up to date to cook the basic Spanish recipes. Additionally, it supports people to cook intuitively. The concept is a rack, where the basic ingredients (eggs, potatoes etc) can be placed in containers. New products are always added from the top, so the oldest products are always at the bottom of the container, where they can be picked up. The containers can move to indicate the freshness of the ingredients. When a container is low, the product is old and needs to be used very soon. Cooks are visually guided to the products they need to use first, to create basic dishes with the ingredients that need to be used first.
**Surinamese**

*Identified intercultural markers*

In the Surinam cooking there is a short-term thinking rather than a long-term thinking as people start cooking when they are hungry instead of at a fixed time. However, when dinner is prepared it becomes a social happening where everybody is together. Dinner is generally prepared outside due to the warm Caribbean climate and cooks always need to prepare enough food for unexpected visitors. Everybody, also the children, help with the cooking, but there is a very strict hierarchy in the kitchen, with the oldest mother in charge. During the cooking strict attention is paid to the quality of ingredients and the food is often tasted during preparation to verify the quality of the flavour. Finally, simplicity is an important intercultural marker defined for the Surinam cooking. Simplicity can be found both in the tools that are used for preparing the food as well as in the fact that eating is done with the hands requiring no cutlery.

**Concept**

The Surinamese group tried to integrate the concept of hierarchy in a tool that supports the chef to delegate and pass his or her knowledge to the people that support in the cooking. The concept is a rack with various cooking tools such as spatulas, knives, a shopping bag and a masher. The chef holds the spatula to stir the pans and taste the quality of the food throughout the process. It is the tool that supports commanding the other people to get ingredients or cut them in a specific way. Examples on how to cut or on what ingredients to use are provided in small tubes that come with each kitchen utensil.

**Taiwanese**

*Identified intercultural markers*

Because almost all ingredients need to be cut into small pieces before being fried, the cutting board is the centre of the working space during the ingredient preparation process in the Taiwanese kitchen. Because Taiwan was occupied by Japan it shares cultural elements with both Japan and the Chinese mainland. In contrast to Japanese culture where everything precisely in fixed size, Taiwanese tend to follow an appropriate proportion in terms of colour, cutting size, and amount of ingredients. These three attributes are not extremely strict but always follow the overall principle of balance. If the proportion is made correctly, a balance can be achieved regarding colour, taste and even nutrition.

**Concept**

The Taiwanese group decided to make round containers in three sizes for the ingredients (see figure 7). Functionally, these containers are handy for cooks to deliver processed ingredients to the cooking space. On the other hand, the size of the containers is set to implicitly limit the amounts of ingredients in balanced proportions. To give a reference of cutting sizes, grid patterns are burned in the inner part of the container. The gap of the grid lines implies the cutting size for the ingredients in the container. For example, big containers usually are for vegetables, which usually are cut in big pieces; small amount of spices like garlic are supposed to cut into small pieces and put into small containers. The round cutting board is a typical shape for cutting boards in traditional Chinese/Taiwanese culture and all the utensils for the cutting part are designed in a proportional and aesthetic way. To have an overview, create orders and trigger new combinations of ingredients, all containers can be stacked.
Discussion

This paper describes a design exercise for industrial design students, intended to raise their cultural awareness and support creativity through the act of designing in context. The exercise has shown how industrial design students can be inspired by cultural values obtained through a process of cooking. We will continuously elaborate on how intercultural markers may inspire design. Furthermore, we will argue for a more experience-based design process as practiced through the act of cooking and how industrial design students may benefit from such exercise.

Reflection on intercultural markers

Inspiration from intercultural markers to design kitchen utensils yielded a variety of designs addressing three categories, products, processes and interaction. Two main types can be distinguished on a product level; various cutting boards (Cantonese, Czech and Taiwanese) and serving plates (Japanese and Mandarin Chinese) were developed. Four aspects can be distinguished on a process level, being structure in the kitchen (Spanish, Surinamese and Taiwanese), combination of ingredients (Cantonese, Mandarin Chinese, Spanish and Taiwanese), quality assessment throughout the cooking process (Italian, Mandarin Chinese), and presentation (Japanese and Taiwanese). Furthermore, another important aspect that was regarded as salient in various cultures, but only found its way in the Mandarin Chinese design was social interaction.

In addition to the intercultural markers that were applied in the different designs, various salient aspects were mentioned in the students’ observations of the cooking process that raised discussion. In some cases it was unclear whether these salient aspects had to be interpreted as cultural markers or as personal markers of the chef in charge. For example, in the Czech, Mandarin and Cantonese way of cooking a high emphasis was put on hygiene. Furthermore, care for the food (Cantonese, Japanese and Taiwanese), cooking by intuition (Italian, Spanish and Taiwanese) and quality of the
produce (Italian and Surinamese) were also pointed out as debatable cultural markers. One could reason that these aspects were pointed out because the module involved students. However, when looking back at the discussions a different reasoning could also be taken.

While the purpose of this module was to teach students how to understand different cultures and how to design while being inspired by these cultures, many reflected that the approach also supported them in getting a better grip on their own culture. As pointed out in the introduction, the Dutch culture shows large similarities with the English in regarding food as a necessity (Wright et al., 2001; Burnett, 1989). This was very often observed in the reactions of the students during this module. The Dutch are not well-known for their cooking habits and as the English they have a dish washing approach which is often considered as unhygienic when observed by other cultures. Salient aspects pointed out by the Dutch students such as care, cooking by intuition sense for quality and hygiene may therefore not be a personal marker as suggested, but the opposite of those aspects could be cultural markers of the Dutch. Therefore, the students might have been biased by their own culture and a follow up study should involve the perspective from another culture.

The discussions with the students, in particular during the different dinners that were organized to test the various explorations, clearly supported them in their cultural awareness. Not only did they understand more of the culture of their peers, they learned more about their own culture and how they could use cultural elements to inspire their designs. While culture is perhaps the most obvious influence on food preferences and choice (Furst et al., 1996), it may also have a strong impact on design. Aspects that are apparent in food choice, such as environment (Surinamese), rituals (Japanese), community and family structure (Cantonese, Mandarin Chinese and Surinamese) were all extensively discussed during the observations and applied in the designs. But other, more aesthetic aspects such as balance (Cantonese, Japanese and Taiwanese), creativity (Italian and Spanish) and structure (Czech and Mandarin Chinese) may also be applicable for design.

Reflection on cooking and design

In addition to the fact that a culturally embedded activity such as cooking allowed industrial design students to design products respecting the values of a culture, they also learned some important lessons regarding design. We already pointed out the similarities in terms of creativity between the cooking process and the design process (Hoffman, 2009). However, the observations of the students in this exercise can take this even one step further. Taking the reflective transformative design process, in which designers go through various iterations of analyzing, making, exploring and envisioning (Hummels & Frens, 2009), students realized that in a cooking process they went through these iterations at a much faster pace. Envisioning a taste or combination of ingredients, thinking of a new recipe, preparing it and evaluating it by tasting, could be done in a matter of minutes.

Figure 8: Different design explorations using sketches and scrap materials in context by the Italian, Czech and Cantonese groups

Throughout the process we observed that students that took this design approach of testing in context (see figure 8) while developing their ideas came to very concrete products (Cantonese, Czech, Italian, Japanese, Mandarin Chinese 2 and Taiwanese). On the other hand, groups that returned to the
drawing board to think of design opportunities (Mandarin Chinese 1, Spanish and Surinamese) remained in a fairly conceptual stage, addressing an opportunity for further exploration rather than coming to an embodied design. Furthermore, the cultures that put a particular emphasis on care and attention in the cooking process also made the students more aware of these attributes in the design process.

The results of the Cantonese and in particular the Japanese and Taiwanese showed a sharp eye for detail and finishing in their designs. Understanding and appreciating quality can also be considered as an important lesson taken from the cooking and applied to the design process. One of the students that was most prototypical for his Dutch culture regarding food as just a necessity remarked that he was happy to make the prototype entirely by hand. He felt obliged to his Taiwanese group mate to put the same effort and attention to detail into their prototype as he had put into his meal.

**Conclusion on cooking, culture and design**

Although the intercultural markers defined by the students may not seem as surprising when taking an external perspective, engaging in cooking supported the students in both empathizing with the other culture, as well as in reflecting and getting a better understanding of their own culture. It may not be surprising that people actually know very little about other cultures. However, by engaging in the cooking and making the dish supported by the foreign chef the students actually started to understand what the other culture was about. This is very much in line with the constructionism approach (Papert, 1991). The reflections by the students indicate, that the co-experience of cooking with the foreign chef supported a stronger empathic understanding than the act of documenting the process without intervening. Thus, in contrast to taking questionnaires or interviews, the act of engaging in a culturally inspired activity such as cooking may provide a stronger spark of creativity towards the development of culturally inspired products. We believe that designers can achieve a more experience-based design, when they take the cultural context into account while designing a product, system or related service.

Finally, we argue that the cooking environment may serve as an excellent and inspiring context for industrial design students to get a grip on culturally related design issues. Cooking allows for faster design iterations, and therefore more easily triggers reflection on action (Schön, 1983). By going through a cooking process designers will better understand the different activities of the design process. In contrast to design thinking, the cooking particularly highlights that the act of making is as an essential and inspiring element in the design process. Furthermore, by cooking together with people from a culture that shows a high value for food students will develop a sense of delicacy and subtlety. Therefore, we believe that cooking increases the appreciation for quality in design as designers are forced to employ all their senses when preparing food.

**Acknowledgements**

We would like to thank all the students who participated in this module and the Foodlab Eindhoven for hosting us during the final presentation.
References


