A SENSORY-MATERIAL STUDY OF EVERYDAY STRATEGIES AND TACTICS IN THE KITCHEN

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ABSTRACT

This article explores the idea of cooking as an everyday spatial practice which occurs in a sensorial and material way within the kitchen. Rather than focusing on the physical arrangement and the efficient workflow, the kitchen exists as a space of strategy and tactics in cooking. Cooking is a practice that involves material transformation driven by sensorial experience, which further shapes the spatial strategies and tactics performed within a kitchen. This study explores a routine noodle-cooking practice, observing the participant’s sensory experience and material transformation to demonstrate the kitchen as an everyday space of strategies and tactics. The kitchen becomes a spatial arrangement that celebrates the intertwining between the transformation of material with sensory experience. Such intertwine governed operations of cooking strategies and tactics, arranging the timing of movements, altering sequence of activities, and manipulation techniques of material. Such operation arguably insinuates the kitchen as an idea constructed by the intertwined layers of sensory and material transformation, contributing to expanding the idea of the kitchen from an everyday perspective.

Keywords: cooking, strategy and tactic, material transformation, sensory experience, kitchen

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The evolving ideas of the kitchen

The cooking activity has always been associated with the kitchen, and the evolving discussion of kitchen design has gained prominence in the domestic discourse (Hand & Shove, 2004). The idea of the domestic kitchen has changed along with the practice of cooking and the advancement of technology. In the early 20th century in Europe, the kitchen was defined as a space arranged for cooking by the house assistants, which should be separated from the main living area. The kitchen in such time was positioned as a dirty space engulfed by the use of charcoal resulting in gas, smoke, and ashes (Forty, 1986; Hand & Shove, 2004). The kitchen was always positioned either in a location far from the main house or placed in the back region due to the unwanted experiences from possible visual, smell, or noise pollution.

In modern times, the idea of the kitchen shifts with the advancement of technology and materials (Bell & Kaye, 2002; Cieraad, 2002; Hand & Shove, 2004), allowing the localisation and distribution of the dirt and pollution. The kitchen's position and layout became increasingly strategic within the domestic setting, reflecting the owner's characteristics (Cieraad, 2002). The idea of a kitchen is largely governed by the need to achieve an efficient flow of the kitchen (Cromley, 1996) and standardised hygiene measurements (Suryantini, Atmodiwirjo, et al., 2021; Suryantini, Paramita, et al., 2021). Kitchen design is thus shaped based on the rational use of space that calculates the employment of foodstuff, cooking tools, and utensils to create a generic and orderly kitchen design (Schneiderman, 2010).

Particularly in the 20th century, the discussion on the kitchen revolves around the kitchen's sink and cooking form, equipment, tools and utensils required for cooking and food production (Bell & Kaye, 2002; Cieraad, 2002; Schneiderman, 2010). Such discussion pays limited discussion on the other aspects of cooking (Korsmeyer & Sutton, 2011), such as memory and sensory experience during cooking. Moreover, cooking is a spatial practice (de Certeau et al., 1998), a form of physical activity with the engagement of the senses (Berenbaum, 1995). Instead of only perceiving the kitchen as a place dedicated to the clean, the cooked and edible, cooking also generates various odours, sounds, and visuals (Ahn et al., 2008; de Certeau et al., 1998; Korsmeyer & Sutton, 2011). The smell of food in cooking is generated from the transformation of material, from raw to cooked, which becomes sometimes more tempting than the eating practice itself (Pollan, 2013). Beyond a generic and ordered kitchen, such space may be translated as an arrangement that insinuates a very vibrant and dynamic atmosphere, suggesting a celebration of cooking as an essential aspect of everyday life.

Acknowledging cooking as spatial practice and employing the everyday perspective towards further exploration becomes crucial to fill in the gap of such discussion. The everyday perspective recognises both the general and particular way of cooking, which allows a possibility of enriching the understanding of the spatial arrangement of the kitchen. It signifies the actors'
strategy and tactics to produce food, driven by a standard procedure, or instead shaped by memory, habit, or culture-related backgrounds (de Certeau et al., 1998; Pollan, 2013; Standage, 2009). From this point of view, this paper aims to explore the strategies and tactics that generate and dynamically alter spatial arrangement during cooking, which potentially contributes to the everyday spatiality of a kitchen, seeking further how strategies and tactics take place within one another.

This paper starts with the discussion of cooking from the everyday perspective, elaborating on cooking as a spatial practice that consists of strategy and tactics. It continues by discussing the aspects of sensory experience and the material transformation that transform the everyday spatiality of cooking. The discussion proceeds with an investigation of a routine instant-noodle cooking practice in the kitchen, analysing the arrangement of strategies and tactics during cooking concerning the material transformation and sensory experience. Such exploration would arguably suggest the kitchen as an arrangement of strategies and tactics operations, which reflect the intertwining of material transformation and sensorial experience.

Cooking as a spatial practice

Elaborating further on cooking as an everyday spatial practice, de Certeau (1984) explains that cooking consists of "ways of operating" (p. xi), or a particular way of doing things, similar to instructions or specific procedures. The operations of everyday practice can be seen in two forms, namely strategy and tactic, to negotiate the situations or the spatial arrangements. de Certeau (1984) explains further the difference between the two, highlighting how strategy occurs as a general or common operation that operates with the formal or proper framework, while tactic negotiates fragmentarily, seizes opportunities, manipulates, and manoeuvres within them. Tactics depend on the situation to be able to reappropriate the space or existing structures, making their everyday arrangements habitable (Atmodiwirjo & Yatmo, 2019). Exploring cooking as a spatial practice requires an understanding of its procedures and underlying logic.

Since the basic notion of cooking is to transform the raw materials or ingredients into something cooked or edible (Lévi-Strauss, 1990), exploring cooking practice as a series of operations towards material transformation becomes important and should be further discussed. A series of operations may be arranged according to the specific orders to transform materials. The first operation can be seen in the use of recipes, existing as cooking's formal structure, where its operations become the strategy which includes general ways of transforming the materials accordingly. Strategy in cooking is usually still in line with the procedures everyone may follow when cooking. Meanwhile, another corresponding form of everyday operation is tactics. Tactics refer to the particular variations in the operations that are often influenced by the situation the ingredient undergoes
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(de Certeau et al., 1998; Korsmeyer & Sutton, 2011). If the strategy is a set of general guidelines, tactics are what distinguish each actor’s practice through such variations.

Even though many everyday practices, including cooking, are tactical (de Certeau, 1984; de Certeau et al., 1998), both logics of operations are arguably intertwined in the process and influence the food as its result. The operations that occur in the process of cooking are not likely only based on the recipe (as the general rule) but also depending on the stimuli that are absorbed by the sensory experience. The sensory experience includes visual, auditory, olfactory, gustatory, and tactile, each of which is closely related to the material transformation. Such sensory stimuli are experienced, memorised, learned and developed through imitation or trial and error (Atmodiwirjo & Yatmo, 2022), signifying cooking practice as a dynamic arrangement. Based on the discussion above, the following section elaborates further on the two influential aspects in cooking that will determine the occurrence of strategies and tactics, which consist of (1) the process of material transformation and (2) the subsequent sensory experience that triggers such experience.

**The material transformation of cooking**

As mentioned above, the fundamental idea of cooking is transforming materials (Lévi-Strauss, 2013). There are at least three kinds of material transformations during cooking: physical, chemical, and biological transformations (Provost et al., 2016). The physical transformation takes place when the material is transformed into a different size and shape with the help of cooking tools. The chemical transformation occurs as the compositions of material change with the help of other elements such as fire and water. Biological transformation happens when a material changes in response to the inclusion of organisms, creating processes of change such as decay or fermentation. It is important to note that the chemical and biological transformations can be identified mainly through the production of visuals (e.g., colour, texture), tactile, and olfactory changes.

These physical, chemical, and biological transformations are reflected in the process of cooking previously inedible materials into edible, from raw to cooked ones, also with the help of elements such as fire and liquid substances (Pollan, 2013). Fire plays a fundamental role in transforming raw materials, as it acts as a catalyst that triggers the chemical reaction in the cooking process, informing the sensory space (Bech-Danielsen, 2012; Provost et al., 2016). Fire eliminates microbes that live in the raw materials and reduces the possibility of contamination of the food. In addition, fire generates the savoury taste of the food due to a chemical reaction triggered by the fire that happens between the fat, protein, and glucose. Other than fire, liquid substances like water and oil can also transform raw materials into cooked materials (Pollan, 2013). The oil reacting to the heat from the fire might result in a particular aroma when mixed with protein and fat caused by oxidation of the fatty acid and
This process generates auditory and gustatory changes.

The cooking practice also suggests that particular operations are required to transform the physical, chemical, and biological character of materials. Operations such as cutting, grinding, boiling, grilling, frying, baking, and fermenting, as well as their sequential arrangements become essential to determine the result. Moreover, cooking tools and utensils play an important part in the transformation from beginning to the end, accelerating or delaying the process (Bell & Kaye, 2002). The produced food becomes distinctive through the variations in the sequential arrangements of such operations. Such processes suggest that cooking is a transformation practice, rendering the kitchen or cooking space with layers of material transformations.

The sensory experiences of cooking as material transformation

The involvement of visual, auditory, gustatory, olfactory, and tactile senses entangles in every inch of the cooking practice (Berenbaum, 1995; Fisker & Olsen, 2008). Various colours and textures of various ingredients are absorbed by the visual and tactile senses throughout cooking, as the noise formed by the interaction of cooking instruments as the auditory stimulus, the taste or flavour that comes when tasting food, the aroma that occurs, and changes in temperature with the sensation of touch. Cooking becomes a practice that very much involves the human sensory experience (Figure 1).

The sensory experience particularly identifies the changes in materials and whether or not they are consumable. The gustatory and visual senses are vital in cooking (Korsmeyer & Sutton, 2011). Experiences from both senses enable the food to be perceived as edible and palatable. The olfactory can trigger curiosity and hunger and arouse interest in tasting the food. Moreover, the aroma of the food provides clues for humans to eat immediately, as the human body will prepare to digest the food after perceiving such an aroma (Provost et al., 2016). This happens because those sensors have a powerful memory stimulus.
As cooking consists of consecutive and repetitive steps, the sensory system plays a crucial role in determining the actions or operations that drive the material transformation (de Certeau et al., 1998). The materials, ingredients, and tools are employed in the operations based on the sensory input, deciding which ingredients should be treated or modified to achieve the expected result. The sensory experience uses the perceived material transformations to arrange the required operations until the food material is cooked and becomes edible (Bech-Danielsen, 2012).

Insofar, cooking as a practice that transforms materials and involves sensory experience has given a different perspective to exploring the idea of a kitchen. The kitchen becomes a place that allows the material transformation with the existence of sensory stimulants, navigating the preparation and the assembly of food ingredients. There is a potential to re-read the spatiality of the kitchen based on the operations that are closely intertwined with the bodily experience and perceptions during cooking. Cooking practice thus insinuates the overlooked and subtle spatial layers constructed in one's cooking practice, further discussed in the next section.

**Mapping as a method of re-reading the sensory-material driven operations of cooking**

This study employs a qualitative method, mapping the whole operations that occur in cooking from the first-person experience. The cooking operations are mapped chronologically, identifying the strategies and tactics developed throughout the process of cooking (Yatmo et al., 2019). The observations are conducted to highlight both the strategy and tactics operated during cooking (de Certeau et al., 1998; Highmore, 2002). Following the sensorial experiences during the transformation of the ingredients from raw to cooked materials, the study attempts to reveal how such sensory-material study constructs an alternative reading on the spatiality of cooking.

The author conducts this study by performing routine instant-noodle cooking in a domestic kitchen, utilising the first-person experience as a form of participant observation (Wang & Groat, 2013). Cooking instant noodles is chosen particularly as it is a simple everyday food that does not require some special cooking skills. The noodles in the packaging will be considered the primary raw material and not yet edible. Additional food ingredients, such as eggs are more complementary and have no effect in transforming instant noodles from raw to cooked.

The analysis is conducted based on three stages of cooking, which consist of the initial stage where all parts of the kitchen are still neat and orderly, the processing stage or transformation of the materials, and the final stage where the instant noodles are cooked and become edible (Till & Wigglesworth, 1998). The cooking process is observed as both operations which mainly follow the recipe provided in the packaging or operations of the instant noodles that allow appropriations between the primary procedures. Every cook has their preferences on how they want
to cook the noodles. Every operation and sensorial experience found in the observation were noted, traced, and mapped. Such maps inform the strategies and tactics for cooking noodles and reveal different arrangements of cooking space in the kitchen that might happen cooking.

**Identifying the everyday operations of noodle cooking practice**

The study started by identifying the kitchen and arrangement of tools that exist at the beginning of the overall cooking operations. The kitchen observed in this study has an L-shaped kitchen, equipped with a sink, stove, cupboards for ingredients and tools storage, a top table as the working surface, and a refrigerator (Figure 2). This kitchen is a place that is equipped with essential elements that are arranged in their proper place. For noodle cooking, these elements consist of (1) raw materials (instant noodles, water, seasonings, eggs); and (2) utensils (forks, pans, and bowls).

This section describes a routine practice of instant noodle-cooking and identifies the strategies and tactics operations that happen within such practice. According to the recipe in the package (Figure 3), there are three steps required to cook the noodles. The process started by boiling the noodles with 400 ml of water, which amount to around two glasses. The water will boil for three minutes, and during that time, the noodles need to be stirred. On the side, the cook will need to prepare the seasonings and chilli powder into a bowl while the noodles are being boiled. The cooked noodle is then poured along with its soupy water into the bowl, to be stirred with the seasonings until it is mixed.
The following paragraph follows through by analysing the stages of cooking that take place in the observation. The initial stages (the beginning) define the kitchen as a place with rules and stability. The middle step defines such a stable state as being rendered by the operations happening in the process of cooking. Lastly, the trace of the operations and configuration of objects indicates the result generated from the developed strategies and tactics.

The first stage in making instant noodles is started with the beginning where the kitchen exists in its initial state, where all the essential elements in the kitchen area were in a stable and orderly condition. The instant noodle was still in its manufactured packaging and stored in the cupboard. The cooking tools and utensils are also still placed in the cupboard in clean condition and ready to be used. The potable water that will be used for boiling was sourced in the water dispenser, and the eggs have not been removed from the refrigerator. At this stage, there was no operation existed yet.

The transformation stage in making instant noodles begins with an operation to collect the materials and place the materials in one zone within the kitchen to facilitate the next operation. The raw materials (instant noodles, water, and eggs) were collected from the storage cupboard, refrigerator, and water dispenser. The pot for boiling noodles was taken from another cupboard. Then, the pot was filled with water from the dispenser. In this stage, the order in which the collection and the placement of ingredients and utensils were placed in the kitchen was not crucial in driving the transformation of the raw materials into cooked ones. Changes in the order will not affect any material transformation, which means that the preparation stage of materials and utensils was not yet considered as an operation required for food transformation to occur.

After collecting the materials, the next step was to heat the water in zone A, marked with the yellow box (Figure 4). According to the recipe, the instant noodles must be mixed with hot water to soften the noodle. As the existing condition of water temperature was low, some operations were required to increase the water temperature faster, even though the recipe does not explain them. At this stage, the stove was lit, and the water was placed in a pot above the fire to increase the water from room temperature. When the fire is lit, the water slowly begins to change in temperature, causing the kitchen zone used to heat the water to change in temperature. After five minutes of heating, some water was transformed into steam. Although some water transforms into steam, there is still much liquid water remaining. This stage is identified as zone A, the material manipulation with fire reveals the space of material transformation.

This stage was demonstrated by an increase in temperature perceived within the cook’s tactile sensory space. The transformation of liquid material defines the zone that is annotated with a yellow square in the drawing above, which was the zone where the space for the transformation of liquid
into gas occurs. It means that two spaces in the zone exist in the intertwine between the material change and sensorial experience, namely the space for the transformation of liquid into a gas and the sensorial experience that perceive the rising temperature within the kitchen.

After the water boils and the temperature rises, the packaging recipe instructs the instant noodles and eggs to be put into the pot. This stage is essential in transforming previously coarse-textured instant noodles into smoother ones. In this stage,
the transformation is carried out using water and fire. Water seeps into the noodles, assisted by fire which allows a reaction between water and noodles, making the noodles smoother. In addition to noodles, eggs can also be transformed from liquid to solid through reaction with fire and water. It was fascinating to see that the fire can transform materials from a liquid to a solid, and at the same time, it transformed a coarse-textured material into a finer one (Figure 5).

This stage also indicated an increase in temperature, perceived through the tactile sensory. Similar to the previous steps, the transformation zone of liquid material into a gas, as well as the sensorial experience of the rising temperature is also annotated in yellow square in the drawing. The space for the operation used for transforming the material is still in the same zone as the zone in transformation space A (Figure 6). At this stage, the transformation space that occurs was a space for the transformation of food material from liquid into solid form and from a coarse into fine texture. The temperature felt the same as in the previous stage, so the formed space is largely experienced with tactile-based sensory.

After the noodles is softened and the egg is hardened, the soft noodles and boiled eggs was placed in a bowl and season them after transforming the two ingredients. At this final stage, the instant noodles cannot be said to be cooked yet because they cannot be readily eaten if they are not seasoned. The instant noodles that have been transformed into smooth were then mixed with the spices using a fork. As the water and the instant noodles are poured into the bowl, both ingredients reacted with the spices and produced a strong aroma. In addition to aroma, the state of the water also changed from clear to coloured. In this case, the annotated zone in the following drawing suggests two sensorial experiences, namely the sensory created by the aroma of the noodle seasoning and by the colour transformation in the kitchen space (Figure 6).

In the final stage, the manipulation operation of food material has been completed. It is being marked by the raw material that has been transformed into a ripe, edible material. The final stage demonstrates a collection of traces that were produced in the middle stage which define the overall transformation spaces that occur in the process of cooking instant noodles (Figure 7). This cooking instant noodles experiment was recorded in chronological order, and this order was reinforced by the traces of objects left at the scene, which left the noodle package and the seasonings sachets in disarray.

The study indicates three transformative zones resulted from noodle-cooking practice. Two of the three transformation zones (zone A and zone B) are in the same zone that uses fire as an element to manipulate materials. Meanwhile, the other transformation zone takes place next to the pantry counter (zone C). The three zones are in a chronological sequence constructed by the strategies and tactics mainly required to transform the raw into edible material.
Reading the spatial strategies and tactics in the noodle-cooking practice

Based on the elaboration of the cooking process in the previous section, this section discusses the spatial strategies and tactics which happened in the kitchen. The operations that occur in the process of cooking instant noodles consist of simple stages with only one critical step required which is boiling the noodles with water and fire to transform raw instant noodles into cooked ingredients. The heat from fire implies a vital role in transforming the material, presenting various sensory inputs and inducing a wide array of tactics. When a fire was lit, water slowly begins to experience a temperature change that can be felt by the sense of touch. Then, the instant noodles are put into the water and to determine when the material has become smooth, a visual assessment of its shape and colour is required. However, through the process of boiling, the raw materials went through some chemical reactions which give rise to sensory experiences beyond visuals, such as aroma and texture, further affecting what and when the next step of cooking is required to be performed. After the sensorial presence of the noodles is considered satisfactory, the instant noodles are removed and mixed with spices and water. When the water poured with the instant noodles reacts with the spices, a strong aroma emerges, which becomes an olfactory sensation.

The strategy operation of cooking noodles is the one which follows the general procedures outlined before cooking. Boiling becomes the primary strategy needed to transform raw materials into cooked ones and eventually produces some stimuli that act as sensory input. Even though cooking noodles first follow the general procedures as in the recipe, some alterations that are not prescribed in the package occur. It is as simple as additional steps required before and after the boiling, such as lighting the fire, increasing the water temperature to enable initiation of boiling activities, adding more food material such as an egg to the noodle, and others. These operations become the tactics that were employed, among others, to accelerate or delay the
process of temperature rise, modify the original flavour to the desired one, and produce garnish to beautify the result. Tactics give variety to the resulting noodle soup with a boiled egg.

The series of operations in the cooking practice discussed in this paper are chronologically interrelated and relative to each other, either as strategy or tactic. The difference between operations lies in how they respond to the material transformation and sensory experience, either creating a continuation of the procedures or appropriation of the existing condition. From this perspective, the sensory input from material transformation becomes the trigger for appropriating the general procedures to achieve the desired process or result. Such appropriation may consist of the arranged timing of movements (identifying when to lit up the fire and when to place the noodle), altering the sequence of activities (such as by adding an egg as an additional sequence), and manipulating techniques of material (raising the temperature of fire to speed up the water boiling process).

Such reading demonstrates how the material transformation of food is always tangled with the sensory experience produced by the practice of cooking. The experiment and the traces generated throughout the cooking process, from the beginning to the end, suggested that every operation always has direct involvement with the sensory experience, as explained by Korsmeyer and Sutton (2011) and de Certeau et al. (1989). The noodle-cooking practice suggests that the direct involvement of the sensory input constantly stimulates and affects the following operations taken in the cooking practice, either strategically following general procedures or instead tactically appropriating the procedures. As the operations in cooking aim to transform the material, it means that the operations also affect the sensory experience.

Based on the discussion above, it is also clear that material transformation and sensory experience become two essential aspects of the kitchen's everyday spatiality. The material transformation that occurs due to the everyday operations provides sensory input, including a particular aroma, colour, shape, and consistency or texture. The inputs are perceived and become the basis for the following operations, how the material should be further transformed. The sensory-material interaction exists from the beginning to the end of cooking practice, highlighting the kitchen as a space with the transformative material process which corresponds to the sensorial experience of the cook.

**Everyday operations in the kitchen: A celebration of the material transformation and sensory experience**

This study reveals the idea of the kitchen as a space that accommodates both strategy and tactics that are significantly dependent on the material transformation and sensory experience. By looking at cooking from the everyday perspective, it is clear that there are other ways to explore and gain further understanding of the kitchen. Through engagement with the practice of cooking basic food such as instant noodles, the kitchen
can be understood as an arrangement of strategies and tactics
that allow material transformation and sensory experience.
The sensory experience of cooking is always intertwined with
the process of material transformation, playing an important
role in determining whether to follow or appropriate cooking
procedures as forms of everyday operation.

Based on the two aspects, the noodle-cooking practice
also shows that different kinds of spatial arrangements can be
generated through the layers of material transformation and
sensorial experience. The transformative zones recompose the
spatiality of the kitchen. It emphasises the dialogue between
various transformation processes and the sensory inputs. It
shifts the idea of the kitchen from a physical arrangement with
an efficient workflow to more dynamic and transient zones of
material transformation layered with the sensory experience.

This study adds new insights to the domestic kitchen
discourse from the everyday perspective, where the kitchen no
longer consists of the physical layouts of cooking tools, utensils,
and furniture, but also of the subtle dialectic chronological
arrangements between the cooking strategies and tactics. The
study raises further questions on the possibilities of different
readings of cooking space depending on different kinds and
complexities of food. Such variation in cooking practices
investigation may generate an alternative connection between
sensory experience and material transformation, which can
be the basis of kitchen programming within the perspective of
everyday architecture.

References


