

Cooking Patterns: A Pattern Language for Everyday Cooking

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Abstract. *In this paper, we present Cooking Patterns, which aims to support cooks to gain sense and techniques used in certain situations. While recipes support the cook by giving out instructions on action they should take in order to cook the meal, Cooking Patterns support cooks to decide what to do in certain situation, or in other words, to solve the problem under the context. From all the 27 patterns of Cooking Patterns, we describe 5 full patterns; Comfortable Kitchen, Ingredient-Driven Dish, Uniform Pieces, Reading Bubbles, and Good till the Last Bite.*

Categories and Subject Descriptors

•Information systems → Data analytics

General Terms

Human Factors, Design

Keywords

Pattern Language, Cooking, Recipe

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1. Introduction

How does one become better at cooking? If the aim is to master difficult techniques and fully immerse in the art of cooking, one could attend culinary school, or train under a chef over many years of practice. However, cooking is not just a profession, but is rather an activity that many people live with and enjoy. People engage in cooking in their daily lives whether it is an everyday activity or an occasional hobby. How can people like these, go about improving their skills and learning how to cook better?

Perhaps the most traditional and common way is to refer to recipes, which give instructions to make a certain dish. A recipe is a guideline that is specifically written for a particular dish that you are making. It serves as a basis, and is something that can be adapted. For instance, one can choose to decrease the amount of salt suggested in a recipe, if that better suits their taste preference. Through using various recipes over time, some are able to grasp the more general skills in cooking.

What we are actually learning when we acquire these general skills is the heuristics of cooking. However, due to a lack of support in obtaining the heuristics of cooking, it is hard for many people to grasp the essential senses of cooking. This is why some people can cook well with a recipe, but suddenly feels unconfident when something prevent them from straightly following the given instruction. Therefore, by using a pattern language, which supports the learning of heuristics, people can better understand the elemental foundations of everyday cooking. This is what led us to come up with the idea of capturing heuristics of the cooking process in the form of a pattern language, which we named the Cooking Patterns. These patterns cover good practices that people do in the cooking process itself. We created these patterns mainly for intermediate cooks who want to improve their cooking skill, but beginners and experts can also use them alike as vocabulary for communication. In this paper, we discuss how Cooking Patterns support people who cook for themselves in everyday life.

2. Recipe and Patterns for Cooking

As noted in the introduction, recipes and Cooking Patterns play a different role in supporting cooking. In this section, we describe what each of them does as supporters, and how they are different from each other.

2.1 How Recipes Support Cooking

Recipes support the cook by giving out instructions on action they should take in order to cook the meal. It provides information such as what to prepare beforehand, including tools and ingredients, as well as which steps of action they should follow. By reading the recipe, the cook is able to understand the sequence and take each action. In many cases, we expand our cooking experience, repertoire, and skill through using many different recipes, to the point where we have a grasp of the general cooking sense, and can cook without the guidance of a recipe.

Recipes are widely used and distributed through many mediums such as recipe books, recipe websites, and personal blogs. Some provide instructions with photographs or illustration to give the reader a more specific image. Some organize their recipes by the included ingredients, suitable occasions, or the type of dish. As a tool for presenting the sequence and how to take each action, recipes are widely shared and used by the population.

2.2 How Patterns Support Cooking

As we have been discussing, recipes are effective in guiding the cook through a series of steps and ingredients to create a desired dish. However, cooking involves more than what is described in recipes, such as understanding how to schedule your time, how to heat things properly, and how to choose good ingredients. To become skilled with these other aspects of cooking, a different form of knowledge and understanding is necessary.

In fact, there have been works that capture other aspects of cooking. For instance, Alice Waters's *The Art of Simple Food* aims to change the readers' mindset on approaching simple food and cooking by proposing ideas such as using local ingredients and cooking them simply by adding small amount of spices to enjoy the ingredients' natural flavors [1]. Another example of an untraditional cookbook is Jeff Potter's *Cooking for Geeks*, which break down the cooking processes from a scientific viewpoint [2]. By revealing the mystery behind what actually goes on when food being cooked, it allows the reader to understand the mechanics of cooking that can be applied to different dishes.

Cooking Patterns outline the best practices of everyday cooking. For example: how do you tell when the meat is ready, how do you know the proper way to heat something up, and what should you keep in mind when you are flavoring a dish? People are better able to cope with these situations using best practices that we have presented with our Cooking Patterns and recipes as needed (Figure 1).

Patterns are collective knowledge from experiences that are shared by people. It shows how a problem occurring under a certain situation can be solved. Additionally, it describes what will happen as the result of solving that problem which provides the image of ideal future.



Figure 1. Cooking with recipe and patterns

3. Figures and Tables

We made the Cooking Patterns with the purpose of expressing the heuristic knowledge in the form of patterns, and sharing it with others. In this section, we describe how the Cooking Patterns was made and show the overall content, including 5 full patterns; Comfortable Kitchen, Ingredient-Driven Dish, Uniform Pieces, Read the Bubbles, and Good till the Last Bite.

3.1 Creating the Cooking Patterns

In our attempt to support people's approach on good cooking, we created the Cooking Patterns, consisting of 27 patterns. These patterns were largely created through mining interviews, in which we got to hear hints from those who engage in cooking, such as mothers, chefs, farmers, food stylists, and people who cook for fun (Figure 2). We made sure that we had a good variety of genres, so we interviewed an owner of a Chinese restaurant, a chef from an Italian restaurant, a chef who used to work for a fast food chain, and a chef who owns a bistro. We also brainstormed our own knowledge on cooking, since we enjoy cooking in our free time. There

were a variety of ideas ranging from how to approach when choosing ingredients, to specific tips about cooking a particular dish. These individual tips, written on sticky notes, were organized into groups by similarity using the KJ method [3], from which the 27 patterns were written (Figure 3). During the KJ method, we modified and omitted some ideas so that we had a uniform level of abstractness. We also tried to find similarities in tips that were for making a particular dish, so that the patterns were not too specific, but could be used in various situations. The 27 patterns are divided into 3 pillars of cooking that we discovered which are: environment and preparation, menu design and ingredients, and the cooking process.



Figure 2. Interviewing an Italian chef



Figure 3. Organizing sticky notes

3.2 The Overall View of the Cooking Patterns

Cooking Patterns consists of 27 patterns (Figure 4). A thumbnail on detailed information of each pattern is in the appendix. In this paper, we present 5 full patterns from the Cooking patterns; Comfortable Kitchen (1), Ingredient-Driven Dish (10), Uniform Bites (16), Reading Bubbles (22), and Good Till the Last Bite (27).

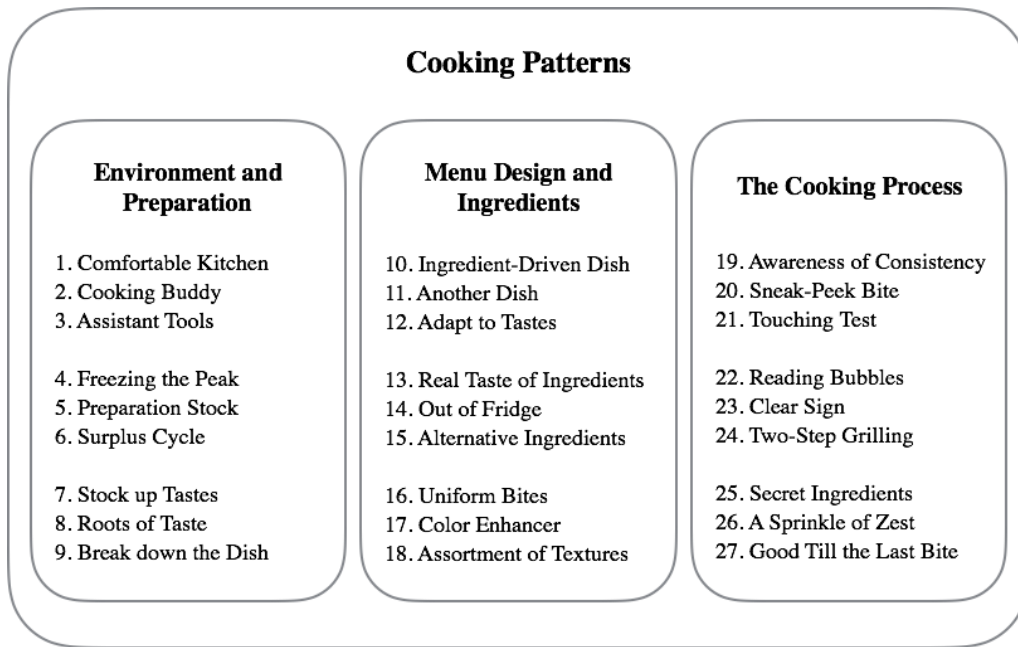


Figure 4. Overall view of the Cooking Patterns

No.1

[Category: Environment and Preparation]

Comfortable Kitchen

A kitchen that lets you cook at your best.



You are about to start cooking.

▼ In this context

If your kitchen is disorganized or untidy, it will make it difficult for you to cook well. In order to cook with good rhythm and pace, you must have your tools and spaces ready for use. For example, your sink must be clear of dishes and your cooking utensils and spices should be placed so that they are easy to find. If your cooking utensils are dirty, or are somewhere they are not supposed to be, you will have to stop and look for them in the middle of your cooking process which can cause frustration and possible problems with proper cooking.

▼ Therefore

Prepare a comfortable cooking environment each time before you begin cooking. Have all of your cookware washed and put away, and make sure that your sink is clear of dishes and residue. If there are pots or kettles that usually occupy your stovetop, put them away so that you can dedicate all of your space to what you are about to cook. As you get used to the cooking process, you can arrange your kitchen so that your most used items and **Cooking Buddy (2)** are conveniently placed.

▼ Consequently

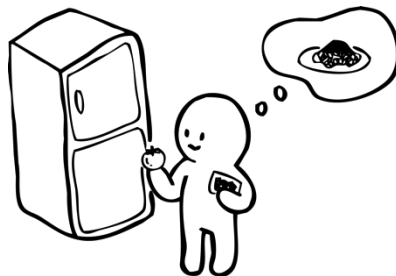
In a clean, organized kitchen, you will be able to approach cooking with a clear and positive mindset. Having an environment that you are comfortable in, allows you to enjoy the process and maintain an eagerness to cook in the long run. Furthermore, having an organized kitchen means that you will not have to spend time searching for your utensils, thus letting you focus on the cooking process itself.

No.10

[Category: Menu Design and Ingredients]

Ingredient-Driven Dish

Use ingredients to inspire your dish.



You are trying to think of what to make.

▼ In this Context

It can be difficult to decide what you should make at times. When you are trying to come up with the menu, you may not know what you want to make or eat right away. Even if you look through cookbooks or recipes for inspiration, it might still be difficult to choose your dish.

▼ Therefore

Pick an ingredient that catches your eye, and use that as a starting point to decide on your menu. If you are out of inspiration, go ahead and visit the grocery store and take a walk down the aisles. Check out the featured products of the day or even special deals of the day, and find an ingredient or two that grasps your interest. Once you've gotten your ingredient, you can

expand your imagination to decide what you can do with it. You can also draw inspiration from ingredients right at your home if you have things in your fridge that you want to use.

▼ Consequently

The ingredients can help inspire you to create dishes that you may have never imagined before. A dish that makes the best of its ingredients will taste better and more original than a dish that relies on added seasonings for flavor. This is especially true if the ingredient has a unique flavor or is fresher than the ones you usually get. You will be able to enjoy **Real Taste of Ingredients (13)** that you would otherwise not be able to experience.

No.16

[Category: Menu Design and Ingredients]

Uniform Bites

Creating texture by cutting ingredients to uniform sizes.



You are cooking with ingredients of varying sizes.

▼ In this context

A dish that uses ingredients with varying sizes tends to lack uniformity. If the different ingredients are cut in varying sizes, they will be cooked unevenly, leading to an unpleasant texture and flavor. Furthermore, the bigger pieces of ingredients may overpower the smaller pieces.

▼ Therefore

Create a uniform texture by cutting your ingredients in the same size. For instance, if you are making something with several ingredients, such as fried rice, cut the vegetables and the meats in uniform pieces. Or, if you are making sauces and dips, such as salsa, you'll also want to mince or chop the ingredients evenly, so that the texture is consistent. You also create uniform pieces for the additional side dishes that are served with a larger piece of meat or fish. Even when you want to have **Assortment of Textures (18)** in a dish, each ingredient should be prepared in its own uniformed size.

▼ As a result

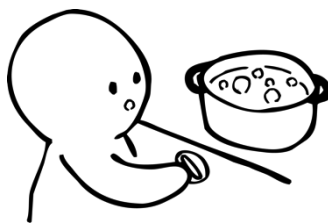
By cutting in uniform sizes, the ingredients will be cooked evenly, and the flavor will be evenly soaked up. Having even pieces of ingredients also means that all of the ingredients will mix nicely in every bite.

No.22

[Category: The Cooking Process]

Reading Bubbles

Control the heat by observing the “bubbles”.



You are cooking with something that contains liquids, such as soups, stews, and sauces.

▼ In this Context

If you are not careful, you may end up burning or undercooking your food. Cooking on heat that is too low will lengthen the cooking time, and kill the flavor, texture, and natural colors of the ingredients. On the other hand, if the heat is too high, you risk burning the food, resulting in a dried-up mixture with no real flavor.

▼ Therefore

Read the size of the bubbles and make adjustments accordingly. If the bubbles are so large that they look like bubbling magma, it may be a sign that the heat is too high, or there is not enough water in it. In such case, you should turn down the heat or add water. Contrarily, if the bubbles are too calm and the sizes are small, you may need to turn up the heat a bit. In this manner, you can observe the size of the bubbles to find a good heating level.

▼ Consequently

By cooking the food at a good temperature, you can retain the flavor of the ingredients. Heat and fire are crucial too cooking. After finding a good level of heat, you can control the texture by maintaining **Awareness of Consistency (19)**.

No.27

[Category: The Cooking Process]

Good Till the Last Bite

Season your dish with the last bite in mind.



You are seasoning your dish.

▼ In this context

If you season your dish according to how it tastes right after you season it, the overall flavor of the dish may be too intense. When you take a sample bite, you only get the first impression. Therefore, a flavor that tastes good at the first bite may be too strong and heavy on the stomach as it cooks.

▼ Therefore

Season your dish modestly so that the intensity of the flavor is 80% of what you want. By holding back a bit on the flavor when you are sampling and flavoring, you will be able to make dishes that let you feel great after you are done eating it. This is especially true for the main dish, which will make up most of the volume of the meal; it may be best to leave it at a relatively light taste. Additionally, there might be a need of adjustments in order to **Adapt to Tastes (12)**.

▼ Consequently

The slightly modest flavor of your dish will make you want to eat more of it, therefore letting you enjoy the dish until the very last bite. This also means that you will not get tired of the taste halfway through the meal.

4. Conclusion

In this paper, we have outlined the Cooking Patterns, discussing how they can support people to be able to cook better in everyday settings. Our Cooking Patterns directly deal with the subject of cooking, and supports the process of cooking. Additionally, there are other pattern languages that are related to food and cooking.

For instance, the Creative CoCooking Patterns is a pattern language for creative collaborative cooking, which encourages people to enjoy cooking and eating together [4]. While the pattern languages itself is of course related to each other under the context of cooking, “Adapt to Tastes”(12) can be the most connected as this is a useful pattern when sharing food with others.

There are also patterns related to the kitchen and dining in A Pattern Language [5]. Patterns that talk about kitchen are “Farmhouse Kitchen”(139), “Cooking Layout”(184), and “Sunny Counter”(199). The patterns are on how a kitchen should be placed in a house for it to be a comfortable place and is not isolated from other rooms. “Comfortable Kitchen”(1) from the Cooking Patterns also talks about how kitchen should be a comfortable place to be in as well as a comfortable place to cook, advising to clean up before you get started.

In addition to these, we are currently in the process of creating the “Cooking Life Patterns” which deals with the subject of cooking and how to incorporate it into your life. Compared to the Cooking Patterns, Cooking Life Patterns is focused on the life style, not the behaviors during the cooking process. As we continue on, we expect that the researches on pattern languages in the field of cooking itself will develop further on as well.

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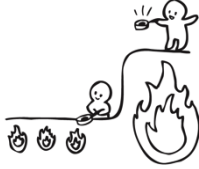



Appendix

Table below shows the overall view of all the 27 patterns from the Cooking Patterns. Along with each pattern name are the pattern illustration and the short description of its solution.

No.	Pattern Name	Illustration	Solution
1	Comfortable Kitchen		Prepare a comfortable cooking environment each time before you begin cooking.
2	Cooking Buddy		Choose your cooking tool, as you would choose a partner.
3	Assistant Tools		Make use of any helpful tools and focus on things that cannot your tools cannot do.
4	Freezing the Peak		Store the ingredients in a way that will allow you to eat them at their best state.
5	Preparation Stock		You can store the food in advance so that you can easily use it later on.
6	Surplus Cycle		Consider the leftover ingredients as a starting point for your next menu.
7	Stock up Tastes		Be curious about different foods and ingredients in everyday life.

8	Roots of Taste		Refer to your family recipe or tastes that you've had in the past, to find your taste preferences.
9	Break down the Dish		Imagine the whole process of making the dish that you have in mind, breaking down the ingredients and the steps that go into it.
10	Ingredient-Driven Dish		Pick an ingredient that catches your eye, and use that as a starting point to decide your menu.
11	Another Dish		Begin designing your dinner table by looking at the whole picture.
12	Adapt to Tastes		Put yourself in other people's shoes when cooking for them.
13	Real Taste of Ingredients		Focus on showcasing the original flavor of the ingredients, and use seasonings as agents to enhance the taste of the ingredients.
14	Out of Fridge		Bring frozen foods to room temperature before cooking with them.
15	Alternative Ingredients		Substitute the missing ingredient with something that functions similarly to it.

16	Uniform Bites		Create a uniform texture by cutting your ingredients in same size.
17	Color Enhancer		Use salt to undercoat your ingredients, to enhance the natural color of the ingredients.
18	Assortment of Textures		Play with a mix of textures in your dish.
19	Awareness of Consistency		Feel the weight of the mixture as you stir and use it as a reference when creating a certain consistency.
20	Sneak-Peek Bite		Control the texture of the ingredients by taking a few test bites as you cook.
21	Touching Test		Press on the steak as you cook it, and remember how that felt and doneness of the meat.
22	Reading Bubbles		Pay attention to the size of the bubbles that you see while cooking soups and liquids.
23	Clear Sign		Determine doneness of meat by waiting for the oil of the meat to turn clear.

24	Two-Step Grilling		Use low heat to cook through, and then use high heat to crisp the exterior.
25	Secret Ingredients		Use a hidden ingredient that brings the taste of ingredients and seasonings together.
26	A Sprinkle of Zest		Top off your creation with a flavor that brings life to the dish.
27	Good Till the Last Bite		Flavor your dish modestly so that the intensity of the flavor is 80% of what you want.

