KNOWING IN PRACTICE : THE CASE OF FRENCH GRANDS RESTAURANTS

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Abstract

How can we characterize knowledge and knowing in cooking practice? How can we explain differences in performance and success? With a constructivist approach, we base our analysis on the study one French Grand Restaurant. We analyze the differences in practice and in knowing of chefs, comparing them to other cooks. We draw on the concept of 'habitus' developed by Bourdieu (1980) to explain that knowing is highly tacit, embedded in physical activities, and actually bridges theory and practice, subjective and objective knowledge, technical skills and rules enforcement, knowledge both in body and mind. We assert that the difference between a great Three-Star chef and a good one is not just technical ability or predisposition but a hard-to-pin-down mix of confidence, concentration and ability to rise the occasion, which is also socially constructed knowledge.

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1.1. KNOWING IN PRACTICE : THE CASE OF FRENCH GRANDS RESTAURANTS

INTRODUCTION

"These men who presided over the fixing of such feast were highly respected, and it was justified because they had to join very different capabilities : genius to invent; knowledge to set out; judgment to adapt; shrewdness to discover; firmness to be obeyed; and punctuality not to be waited."

This assertion on Vatel, Great Conde's chef, written by the famous 18th century French expert in cooking Brillat-Savarin, shows the admiration of men for great cook and the variety of their "capabilities". Nowadays that we are still fascinated by them, we can also learn much about their practice. In "Grand Restaurants", as in many professional organizations, knowing and knowledge processes are keystones for success. How can we characterize knowledge and knowing in cooking practice? How can we explain differences in performance and success?

With a constructivist approach, we base our analysis on the study one French Grand Restaurant. We draw on the concept of 'habitus' developed by Bourdieu (1990) to explain how tacit and explicit knowledge, physical and cognitive abilities are embedded in practice.

We show that the practice of cooking in a Grand Restaurant takes place in a particular game where the rules are historically and socially built at a global level, and adapted by every restaurant as an organization. We analyze knowing in practice using the concept of 'habitus'. As defined by Bourdieu, habitus in cooking is a mix of personal predisposition, knowledge acquired through strong training and repetitive practice, knowledge of the rules integrated and internalized by cooks('doxa' in Bourdieu's theory), knowledge acquired through reflexive thinking on practice. Cooking habitus is highly tacit, embedded in physical activities, and actually bridges theory and practice, subjective and objective knowledge, technical skills and rules enforcement, knowledge both in body and mind. We assert that the difference between a great Three-Star chef and a good one is not just technical ability or predisposition but a hard-to-pin-down mix of confidence, concentration and ability to rise the occasion, which is also socially constructed knowledge. Lastly, we show how habitus allows improvisation in practice.

2. CONTEXT AND PROBLEMATIC OF THE RESEARCH :

2.1. THE CONTEXT OF GRANDS RESTAURANTS AND HAUTE CUISINE

The context of Grands Restaurants, organizations composing the field of so-called "Haute Cuisine " is very particular and should be outlined in order to provide a better understanding of the practices inside organizations. In this section we will present the context of cooking practice in grand restaurants, with the inter-organizational and intra-organizational characteristics of that industry.

2.1.1. Performance evaluation in the industry

Haute Cuisine is a very specific field where the performance of organizations cannot be evaluated through profitability only. Performance is mainly the evaluation of quality, made by external actors. Haute Cuisine is represented by Grands Restaurants, as defined according to the restaurant's rating by gastronomic guides. Among those guides Michelin (also called "The red guide" because of the color of its cover) is the most important. It is the "arbiter of France's restaurant scene" (Toy, 1996). It has been annually rating more than 11 000 restaurants for a hundred years now. Michelin testers are full-time employees of the company. They always are anonymous while eating and always pay for their meal. They also systematically visit the kitchen and offices. As a consequence, Michelin has a strong reputation of being serious, demanding, "*sans concessions*" and has an "image of fierce independence" (Toy, 1996). Michelin grants restaurants with stars ; from none to three stars. Grands Restaurants are the restaurants rated three stars. Such a quotation is never definitive. Restaurants granted with stars are systematically visited, each year, anonymously of course, by Michelin's "inspecteurs". Three stars restaurants are even tested nearly seven times a year each and it can happen that some of them "loose" a star (it already happened indeed). As Joël Robuchon, one of the most famous French Grand Chef states :
"The Michelin guide is the most important. You can say whatever you want, nothing compares to Michelin. For us, there is nothing above the Michelin three stars". (Nanteau, 1999 :75).

Second by importance, the GaultMillau guides rates restaurants with a double quotation: rates with a maximum of 19,5/20 and hats (from none to 4). According to Michelin and GaultMillau standards, there are less than 30 Grands Restaurants in France today. They can be compared to craftsmen. In those Grands Restaurants the quest for perfection is continuous, would it be in cuisine, service or setting. Cuisine is a matter of details, precision and made on order. Everything is deeply thought of, carefully carried out and the output is always unique. Yet, it is noteworthy that if Grands Chefs know each-other and reach comparable levels of excellence, they also are really different one from each-other. Each of them has his own personality and thus his own cuisine.

2.1.2. A hierarchical structure of organizations

The second characteristic to be outlined here is how kitchen work is organized. The organization is rather the same in all Grands Restaurants. A hierarchy exists between the different domains in the kitchen (meat, fish, garde-manger (mostly vegetables), pastry). All kitchen staff (cooks and domain chefs) are under the authority of the Head chef and his/her Second-in-chief. When an order reaches the kitchen, it is announced by the one standing at window.[2].Each domain chef in the kitchen takes then care of the components he is concerned with**.** Once ready (sliced, cooked…) each element is brought to the window. There they are artistically and immediately assembled to compose the plate. Then the plate is controlled and expedited to the dining room. Such an organization necessitates a perfect coordination. This coordination is controlled at window, where all different elements are

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[2] The window is the place in the kitchen where plates are assembled, and controlled, and from where they are expedited to the dining room.

supposed to arrive at the same time and warm, although cooking times can be different. The window is also a sanction place. This is where a plate is accepted or rejected for the dining room, according to the judgement of the expeditor. The window is one of the most strategic place to be in the kitchen. Most of the time the head chef stands at window; he controls and does not cook. If necessary, only the Second-in-chief can replace him and take on this role for the full setting.

2.1.3. A crafts industry composed by professional organizations

The third characteristic of Haute Cuisine to be outlined is that it remains a crafts industry. Cooking is tough and requires a very long practical training. It appeals to our five senses and is a "learning by doing" profession. Gestures, smells, cooking, consistencies are to be felt in the first place. Moreover, if technology has brought about many changes to working conditions, they nonetheless remain tough. A cook has to endure the heat near the stove, the fact that kitchens are often cramped, the work schedule and the nervous pressure during the busiest time…It is exhausting.

Grands Restaurants are small organizations, all with a maximum of 50 employees. The main charge expenses remain human resources, even if wages are rather low, the average ratio is of one employee for one customer per sitting.

As a matter of fact, a grand restaurant is a professional organization, in the way Mintzberg stated it. Knowing in practice is the base of organization, hierarchy and power. The key player is the one with most "knowledge", the Head Chef. He is the best cook in the team, he is a leader, customers choose the restaurant because of him, it is "his" cooking style, he is starified in newspapers and media, and he may be the owner of the firm.

2.2. PROBLEMATIC AND QUESTIONS RISING

In "Grand Restaurants", as in many professional organizations, knowing is the keystone for success, and the Head Chef the key person. How can we characterize his knowing in cooking practice, compared to those of other scooks? How this knowledge is built, is cooking knowledge leveraged among cooks, cooks and Chefs, among chefs ? At an organizational level, how can we explain differences in performance and success between a Grand restaurant and a good restaurant, and between grands restaurants? In this paper we will try to understand the characteristics and differences in knowing-in-practice.

3. CONCEPTUAL AND METHODOLOGICAL BACKGROUNDS :

3.1. A CONSTRUCTIVIST APPROACH ON KNOWING

We adopted a constructivist perpective and as a matter of fact, we deal both with knowledge and knowing. This positioning breaks with traditional epistemology which considers knowledge as something that we possess, that we use in action as a tool, and which is an objective representation of the external world. Even if our epistemological viewpoint remains unusual, it is now shared by various researchers in organizations. Authors such as Blakler (1995), Tsoukas (1996), Sveiby (1996), Baumard (1997), Von

Krogh (1998), Cook and Brown (1999), Spender (1996), Gherardi and Nicolini (2000) have adopted a rather similar perspective, even if they don't explicitly claim it.

We consider that knowledge is closely linked to action and is both the products of a cognitive activity and the process by which knowledge is constructed. "Knowledge is an activity which is best described as the process of knowing.[...] and knowing an object or an event is to use it by assimilating it to an action scheme " (Von Glaserfelt, 1988; p.234). We modify our knowledge framework because this does not fit with reality. Nevertheless, knowledge is not a single reflection of the world, at a sensitive level. The source of knowledge is situated in practical and cognitive activity. According to Piaget, "I know an object only by acting on it and I can't state anything on it before this action." The world exists before knowing it, but we design particular objects only by acting and during interactions between us and our environment. All the more, when we create new knowledge we make sense out of a new situation and we enhance our potential to act in a new situation.

As a consequence, we consider knowledge as heterogeneous, dynamic, contextualized, embodied and mediatized.

-       Knowledge is heterogeneous: it does not exist a unique type of knowledge and knowing. Philosophy since Aristotle, then psychology, sociology and organization science propose various typologies reflecting the variety and heterogeneity of knowledge. Spender (1996), Baumard (1996), Nonaka (1995), Cook and Brown (1999) rely on the distinction between tacit and explicit knowledge drawn by Polanyi (1967). This dimension is the most common but other authors distinguish the cognitive mechanisms for knowing (Durand 2000, Hatchuel 1993, Reix 1993, Le Boterf 1995) or the place knowledge is embedded (Girod 1993, Blakler 1995).

-       Knowledge and knowing are dynamic. Knowledge evolves as soon as we act. It is continually reconstructed and developed. It is a characteristic of human beings to be permanently assimilating and appropriating knowledge.

-       Knowing is contextual : Related to action, knowing is strongly linked to the context of the action. It is situated in time and space. The context evolves, and knowing evolves too. In a traditional cognitivist perspective, the context is considered as an external environment, whereas in a constructivist approach, knowing is inextricably linked to material and social circumstances in which knowledge is constructed (Gherardi and Nicolini, 2000). In that way, it is essential to understand how people use these circumstances to act intelligently, not how they apply cognitive structures to particular situations (Nicolini and Meznar, 1995).

-       Knowing is embodied. It overpasses cognitive frames. As Baumard stated, "no doubt the conceited 'I think therefore I am' which made forgot the 'I think therefore I do' "(Baumard 1996, p.19). He and Nonaka and Takeuchi (1995) attribute to our occidental philosophical inheritance the intellectual tradition which considers knowledge as something cognitive, and which neglects the physical aspect of knowledge highlighted by oriental culture. Nonaka (1998) introduced the concept of 'ba' to explain this physical aspect of knowledge. Strati (2000) developed 'aesthetic knowledge' as "the form of knowledge that persons acquire by activating the specific capacities of their perceptive-sensorial faculties

and aesthetic judgement in the day-to-day lives of organizations", and showed the importance of the five senses in knowing.

- Knowing is both personal and social. Knowledge is not universal since every people knows through his own past knowing and present experience. As Von Krogh puts it, "because knowledge resides in our bodies and is closely tied to our senses and previous experience, we will come to create the world in ways that are unique to ourselves." (Von Krogh 1998) However, Polanyi asserted that knowing is also social because we are living in a collective context, thus knowing takes place in a social context.

3.2. METHODOLOGICAL OUTCOMES

In the first place the purpose of this research is to identify knowing in practice. The nature of the research question (exploratory) and of the objective required the use of an in-depth qualitative research methodology. We collected data through case studies (Yin, 1984): our cases are the Grand restaurants. First of all, there is a lot of information about those restaurants and their Chefs in various media, such as gastronomic magazines, Internet, TV interviews… This provides us with useful secondary data. Second, we conducted direct observation of practices and organization in the kitchens, before, during and after sittings. Lastly, we also collected information directly through interviews in restaurants, with chefs and members of their teams. We have three interview guides: one for head chefs, another one for seconds in chief and a last one for member of kitchen staff (such as fish or grill chefs). We analyze our data using classical contend analysis. We used a collection of predetermined categories in accordance with our coding protocol. We compare tasks in the kitchen in order to identify the differences in competences, based on the fact that competences are knowledge in action.

With regard to our sample, we ideally plan to study almost every grand restaurant in France as well as promising chefs who were apprentices in current grands restaurants. We realize it is not that easy though. Those restaurants and their Chefs are constantly solicited and they have very little time to participate to our research. For this reason, we started constructing a theoretical sample (Glaser & Strauss, 1956). That is to say, we try to choose our cases, according to our information needs and what secondary data indicates about chefs and restaurants. At this stage of the research, we have three cases of Grands restaurants. Nonetheless, in this paper we will base our analysis on one case, even if in the discussion we make comparisons and raise propositions based on the two other cases.

With regards validity, Yin (1984) asserts that an in-depth case of a single case may be valid and contributes to research, but the validity process is rather different. In that perspective, our main concerns are with relevance and precision of our results. We used strategies to improve construct validity (Miles et Huberman, 1984 ; Yin, 1989), for example multiple sources of evidence (interviews, direct observation, internal and external secondary data) and informants read over their interview reports. Then we verified that the data we collected in the field relates as closely as possible to the reality we hope to study. The measuring instrument must provide the best possible representation of the phenomenon being investigated. Thus, we assessed instrument reliability by 1) writing full and precise transcriptions of our interviews, 2) coding raw data obtained both by interviews and documents and 3) comparing the results of the different researchers of the team. We

described and explained our analysis strategy and the tools used in the analysis to make sure that our results are pertinent and internally coherent. Such careful explanation increases the transparency of the process through which results are developed and makes it available for criticism.

At this stage, we studied too few cases to be able to consider external validity questions and especially reach classical generalization. All the more, in a constructivist approach, the criteria for external validity are quite different from classical criteria and are mainly based on convinience (Von Glaserfelt 1988) and learnalibility (LeMoigne 1995).

4. THE CONTEXT OF A PARISIAN GRAND RESTAURANT

Our case is a Parisian restaurant. It is a 37 employees company (kitchen and service). It was established in Paris at the end of 1996. It is run by Chef A and his wife. Some of the members of the team have been working with Chef A for several years though, in other restaurants. For example, the Second-in-chief has been working with chef A for more than 20 years.

Restaurant A was rated two stars (Michelin) and 18/20 (GaultMillau) as early as 1997 and became three stars and 19/20 the year after. Prior to this restaurant, Chef A ran three other restaurants in the provinces. There, he gradually rose from one star and 12/20 in 1977, to 17/20 in 1980, 19/20 and two stars in 1986 and reached 19,5/20 and three stars in 1993. Financial setbacks drove him to close down his provincial restaurant before resuscitating in Paris.

Chef A was born 1950 in the center of France. His grand-mother and father ran restaurants and it was soon decided that cooking was going to be his professional future: as the eldest, his parents chose him to run the family restaurant in his turn. According to Chef A himself, it was not his choice, rather a family responsibility.

Chef A did not attend any culinary school. As he told us in an interview:
"I didn't have money and I didn't wanted to, I wasn't interested, […] I founded it boring."

He began to work very young in the kitchen. Starting with internships and being a member of the kitchen staff, he was trained in various restaurants, of different size and with different styles, some of them ran great professionals. He only discovered his passion for cooking later on though, when he found out that his "thing" was in product combinations. As he puts it:
"At a time, I discovered that I had something which was with combinations […] as this occupation seemed really boring to me I needed a good reason to do it […] I realized, from what people told me, that I was capable to, let's say, go a little bit further than a well done course".(Interview with Head Chef)

Now "it's a love story" he says (Nanteau, 1999)

Gastronomy critics define Chef A as "the classmate who had most fun as well as most trouble sitting still" (Wells, 1997). His cuisine is "creative", "filled with artistry, audacity and rich" (Wells, 1997), often surprising, even audacious. In the plate, the mix of ingredients is complex and the course is really "staged". Chef A plays contrasting tastes,

smells and consistencies. He builds relationships between ingredients in a course, and between courses in the meal. The menu is vast and complex. The meal is made up of numerous courses (an average of six) accompanied with many surprising "mises en bouche" (appetizers each a size of a mouthful) as an introduction. His result is qualified as innovative, multidimensional even baroque. Chef A's cuisine is frequently compared to modern art. The plates are "as beautiful as a painting […] to such a point that one hesitates to tuck them in" (Nanteau, 1999). Gastronomy critics agree to classify Chef A in a culinary category which he is probably the only one to belong to. As he puts it himself: "I appropriated things and I have created my own culinary universe" (Interview with Head Chef)

5. KNOWING IN COOKING PRACTICES : FROM INDIVIDUAL KNOWING TO COLLECTIVE OUTPUT

In the following pages, we analyze knowing in practice with a two-stage approach. We will first detail the tasks and responsibilities of each member of the team as we analyzed them on the ground of observations and interviews. It underlies the individual knowing of every actor, and the specificity of Chef knowing. Then, we will relate our observation of a sitting, in order to outline the tacitness and embodiedness of knowing in practice.

5.1. FUNCTIONING OF A COOKING TEAM : DIVERSITY OF KNOWING IN PRACTICE

What is knowing in practice in a Grand Restaurant? We base our analysis on the differences of knowing between various areas of practice, and among actors. We will particularly detail the knowing-in-practice characteristics of the key actor of the organization, Chef A, because apart from having a unique culinary style, Chef A is also characterized by his doings in the kitchen.

5.1.1. Chef A's knowing in practice

The chef A cooks at every sitting. He is characterized by :
-   his ability to accomplish any task in the kitchen and interfere in everything.
-   his high degree of creativity
-   his managing the kitchen staff
-   his relationship to clients

The first characteristics of Chef A is his ability to accomplish any task in the kitchen. Chef A actively participates to what happens in the kitchen before and during the sitting :
"In the mornings (after reflection and before cooking) I participate quite widely (to what happens in the kitchen. (…) I am in the kitchen around 12 a.m. and till 3 p.m. I spend the full sitting in the kitchen." (interview with Head Chef). He holds cooking as a major part of his role. This is true to the point that, as he states: "Very often, the restaurant is close when I am not here. […] This week I have been out three days, and we have called all our clients to inform them I wasn't going to be in the kitchen" (Interview with Head Chef). The main explanation Chef A gives for his cooking is that apart from the fact that he loves it, he holds

it as necessary in order to "leave his mark" in plates: "I really want to leave my mark, what I do think about my cuisine. (…) I touch nearly every plate." (Interview with Head Chef). This means that Chef A wants to sign the plates, not that he has to do it. It is a matter of will rather than of necessity. This also means that some of Chef A's knowledge are purely technical. Chef A was, still is and wants to remain a cook. Moreover, achieving his complex cuisine necessitates that he masters a wide range of techniques. This mastery emerges as one of Chef A's key knowledge which he leverages every day when 1) he cooks and 2) he manages his team to give life to his ideas. As he puts it: "Today, I have a number certitudes about the way this or that should be cooked, which might be different depending on the result I want to come to. There is a method for a particular course, and the same product can be used another way for another idea." (Interview with Head Chef)

The second distinctive task of Chef A is innovation and creativity. The creation of new courses is a privilege of the Chef. Part of his role is reflection about the work being done in the kitchen (current products and courses) and about creativity (new products and courses). This high degree of creativity is certainly attached to Chef A's particular culinary universe and its complexity. But it is also due to the fact that no one else in the kitchen is able to fully complete this task. Chef A is the only one who can create this particular cuisine, in this particular culinary universe. This does not mean that cooks never have ideas and never participate to the creation of new courses though. This rather means that only Chef A can create the menu as a whole system and regularly introduce new courses in the menu. As Chef A states it himself: "sometimes, on their own initiative, their own professional experience [cooks] can bring about an idea or a new find. Rarely a new find, but sometimes a particular technique" (Interview with Head Chef)

In other words, although members of the team can be creative, this remains limited compared to Chef A's creation capacity. This comes clear throughout the process of new courses creation. Chef A saves his mornings for such tasks: "In the mornings, […] I think about my personal work in the kitchen […] courses, products, processes and creativity(Interview with Head Chef). When he has an idea for a new course, he draws a technical card. Technical cards are then distributed to members of the team, including the Second-in-chief of course. His technical cards are hand written. They describe the courses, their style, their universe, their tone. They are not recipes, they do not codify quantities or cooking times. They rather draw a framework (Observation in the kitchen). As Chef a puts it: "There is a technical card (…) which gives them the general outline and we discuss it before they implement it. (…) I give them a framework inside which they do whatever they want […] They do what they want but the framework is precise […] They are not automates." (Interview with Head Chef). Starting with the technical card the cooks give life to Chef A's ideas. The result (what is in the plate) is then tasted by Chef A and discussed with the team to adjust it by 95%. This is where "innovations" by cooks can enrich the course.

In other words, Chef A has a capacity to express himself in cuisine, creating courses, playing with products. This is one of his key knowledge. He is the source of restaurant A's difference and one of its source of excellence.

This ability to create new courses and innovate in cuisine would remain sterile if Chef A was not also able to communicate his ideas to his team and manage it to success. Among the tasks performed by Chef A are communication and team management. Through

observation this may not be as evident as cooking, but it is as important though. In the words of Chef A: "We created a competent group, globally competent, because it's a meal, it's several courses, it's many things, a combination…" (Interview with Head Chef)

In the first place, Chef A communicates his ideas and shares them with the team. Chef A creates his courses on the paper and leaves his staff the responsibility to cook them. He uses technical cards as communication means and does not try to show his staff what his idea should look like when implemented. "[the cooks] have the information and they cook and afterwards I adjust […] I am not always here [when they cook the new course]" (Interview with Head Chef). It is noteworthy that technical cards are not recipes at all. They are general descriptions which rather convey the spirit of the courses. In other words, Chef A communicates his ideas while giving his staff autonomy. Cooks have the freedom to cook what they understood to be Chef A's idea, which is significantly different from cooking Chef A's recipe.

In the second place, Chef A built a team around him to perform his cuisine daily. Usually, he chooses the members of the team upon their cooking skills. During the testing period he observes the cook's technique and his wife observes the cook's ability to integrate the restaurant's team (human relationships). Afterwards they make a decision (Observation in the kitchen). One of Chef A's key knowledge appears to be in choosing the members of his kitchen staff and incite them to stay. Some of the members of the team have been with Chef A for several years. For example the Second-in-chief has been working with Chef A for nearly 20 years. Chef describes them as:
"… competent and highly motivated and concentrated, concentrated. […] their motivation and concentration are above the average, that's clear" (Interview with Head Chef)

In the third place, Chef A daily manages and cooks at the same time. When observing what happens in the kitchen during the sitting (Observation in the kitchen), we noticed that Chef A kept an eye on what was going on around him and regularly interfered to adjust techniques, rations or plates for example. He did not "control" in a hierarchical sense though. Chef A rather participated and assisted the team to reach excellence in each plate. One of Chef A's knowing is thus in management. In his own words:
"It is important to feel comfortable with people. Some people are really talented but they do not feel comfortable with you […] you know you have to feel people and that they feel comfortable and then its not about working anymore, it's about who they are…" (Interview with Head Chef)

Last, Chef A performs another task: relationship with clients. He regularly comes out of the kitchen to visit the dining room (Observation in the kitchen). He is the emerged part of his kitchen team and as such, plays a representation role. Visiting the dinning room is also a means to keep in touch with the "market", inquire about what clients did like or not, why, if they feel comfortable, what they would like… Such a task requires more "business" knowledge that are totally different from those that are leveraged in the kitchen. This means that Chef A has more than pure technical and artistic competencies. He also runs a business and shows more "marketing" knowledge.

5.1.2. Second-in-chief Knowing in practice

The second-in-chief is also a key actor, particularly in Chef A's restaurant where he has been working for twenty years. His knowing complements the chef's.

He posesses a technical level and the ability to accurately reproduce Chef A's cuisine: as Chef A puts it, he is: "the only one who can accurately reproduce what I do" (Interview with Head Chef). Chef A and his Second-in-chief have been working together for nearly 20 years and the later is nearly the double of the former. The Second-in-chief is the one whose understanding of Chef A's ideas an culinary universe is so profound that, cooking, he can produce exactly the same result as Chef A. Technically they probably are interchangeable cooks. Chef A even goes further and states that:
"His basic technique is far better than mine" (Interview with Head Chef).

The main task of the second-in-chief during the setting is to set at window. Because Chef A and his Second-in-chief are so similar as cooks, they can (and do) switch their roles in the kitchen. The Second-in-chief is the expeditor and stands at window so that Chef A can cook, at the contrary to what happens in most Grands Restaurants, where the head chef stands at window and the Second-in-chief cooks. At window, the Second-in-chief shows management and technical knowing. He organizes the work in the kitchen during the sitting. Specifically, he announces courses to be cooked and launches cooking. He masters timings so that the different elements which compose a plate are ready at the same time and can be assembled (observation). He is also the one who's word is systematically waited for, before the plate can be expedited to the dining room: he controls that plates are complete, perfect and can be served (observation).

5.1.3. Cooks practice : a technical knowing in practice

Other cooks may be chief of a domain (meat, fish, garde-manger, pastry), or under the responsability of a domain chief. Their task is essentially technical, and are limited to one area, even if they periodically change domain to enlarge their knowing. Kitchen staff is a technical team. Its members' task is to cook in determined domains. As Chef A puts it:
"I ask them […] to be successful with the basics for a start."

For the members of the team, knowing in practice is fundamentally technical and very specific (limited to the domain they cook in and those they have cooked before their current position). The team is somehow fragmented because cooks are not polyvalent. Only Chef A and his Second-in-chief can organize and coordinate the cooks during the busiest time.

This does not mean that the cooks knowing in practice is minor. Cooks somehow have the responsibility of what is in the plate. They tangibilize Chef A's ideas and creations through the leveraging of their technical culinary knowing in practice. Nevertheless, they are only concerned with cooking in their domain**.**

Moreover, although they all reached a certain degree of technical excellence (which enabled them to become members of the kitchen staff of a grand restaurant), cooks do not all seem to have exactly the same knowing in practice. Some of them seem to have a touch, something above pure technique. They seem to have a potential that others do not have. As Chef A puts it: "Some people are incapable of cooking of a fish or a meat. They always are

off-target, they always quite miss the point. […] It's like playing the piano. […] there is a touch […] you can read Mozart's life an know his scores by heart, some people will still hit the keys like brutes…" (Interview with Head Chef) As opposed to: "I have one of my cooks here […], he doesn't know it yet, but he has a lot of finesse. […] he's fine, he's subtle."

These last quotations point to the fact the technical culinary knowing in practice includes a large part of mastery closely comparable to that of arts. This knowing is developed through a long training. It also is characterized by their sensitive dimension. Culinary art calls for technique as well as for touch and sensitiveness. Those last two dimensions probably cannot be elicited and do not seem to be equally shared among all cooks.

Nevertheless, every cook has to begin at this job, and it gives cooks the opportunity to observe and understand the way a grand restaurant is run, i.e. the rules of the particular game of Haute Cuisine field, as we will explain it later.

5.1.4. Synthesis : differences of knowing in cooking practices

The knowing in practice identified can be summarized in Table 1:

Table1: knowing in practice

		Chef A	Second-in-chief	Cooks
Crea tion	**New courses**	X		
	Technical innovation	X	X	Can
Technique	**Window**	X	X	
	Cooking within a domain	X	X	X
	Cooking within all domains	X	X	
Business	**Communication**	X		
	Team management	X	X	
	Relationship to clients	X		

As summarized in table 1 Chef A's main knowledge is technical (diversified and specialized at the same time), and he possesses creative and business knowledge too. The Second-in-chief has comparable technical knowledge but no creative ability to innovate in the menu and create new courses. The Second-in-chief also has partial business knowledge, in relation to team management and work organization. In that sense his knowing is more technically oriented that the one of Chef A. Last, the team shows purely technical knowledge, which is limited to cooking, even if their practice in the context of a Grand Restaurant gives them the opportunity to familiarize to this context, which is essential to develop knowing in practice at a better level. Talking about a possible drift in time if he is away from his restaurant, Chef A points to such differences in these terms:
"I think that the problem lies in a drift with time, and it's easy to understand. I mean you leave for 10 or 15 days, even a month, I think it wouldn't change a lot of things. Afterwards

problems would emerge regarding product renewal, new things, new ideas to implement, little things that are pluses you know…" (Interview with Head Chef)

This quotation points to the fact that some of Chef A's specific knowing in practice are key to the restaurant. It also outlines the fact that they seem to be leveraged periodically, as opposed to those of the Second-in-chief and the cooks which are leveraged at each sitting.

Such differences in knowing in practice between kitchen staff, the Second-in-chief and Chef A can thus be represented as an inverted pyramid:
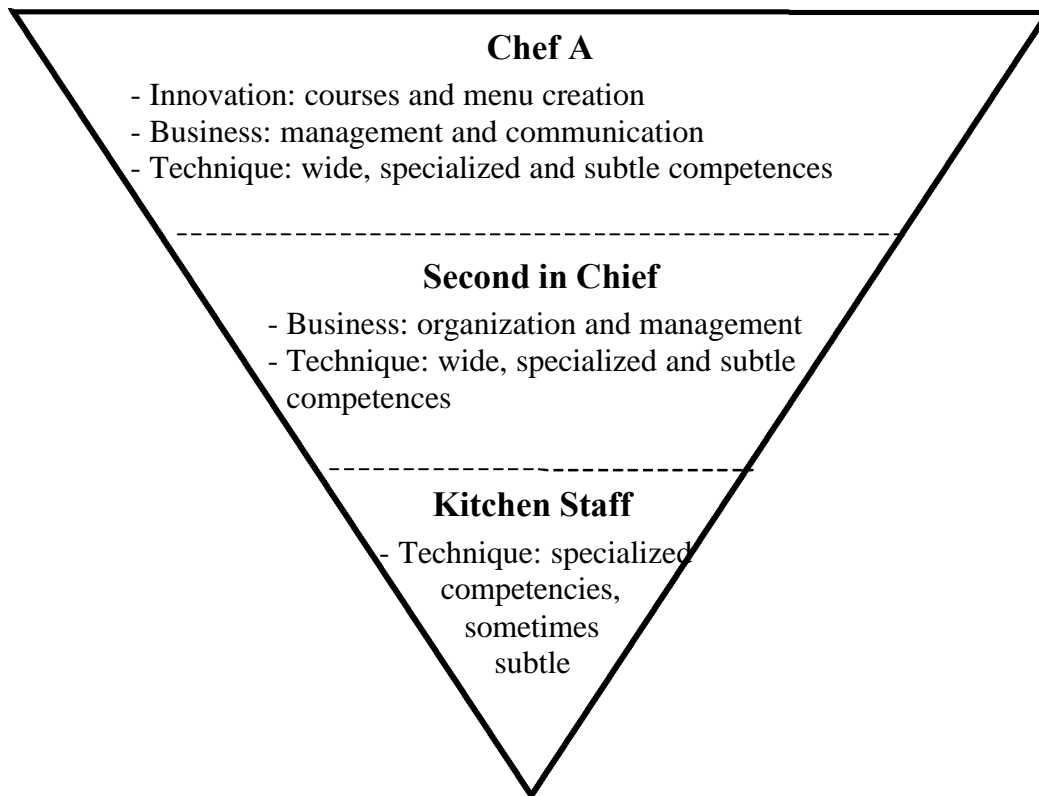
Chef A

- Innovation: courses and menu creation
- Business: management and communication
- Technique: wide, specialized and subtle competences

Second in Chief

- Business: organization and management
- Technique: wide, specialized and subtle competences

Kitchen Staff

- Technique: specialized competencies, sometimes subtle

Figure 1 :The reversed pyramid of differences in knowing in practice.

5.2. TOWARDS A DYNAMIC APPROACH OF KNOWING IN PRACTICE

In order to analyze the collective and dynamic aspects of knowing in practice, we need hereafter to relate a sitting as we observed it in Chef A 's restaurant. This will provide the reader with a better understanding of the cooking practice, highlighting the importance of improvisation and coordination.

11:30am : The sitting begins by a meeting of the team before customers arrive. The head waiter organizes the daily brief with the dining-room staff. The head chef or his wife occasionally attend this briefing. Each day a different course is discussed, new ideas are suggested for example with regards the cheeseboard. Waiters must be able to answer every question from clients, would it regard the designation of origin of a cheese or the

ingredients in a course. During the morning brief the head waiter also details which particular guests (famous or regular clients) are expected for the sitting and where they will be seated.

However, cooking has begun from the early morning, the kitchen staff has been preparing every tools and cooking long-simmering meals. As we enter this magical place and even though the atmosphere seems pleasant (cooks talk to each other, explain what they do, clean their cooking space and set it ready, verify their instruments…) we already can fell a tension; the hour before the sitting is a very important moment. Everybody is busy getting ready for the sitting. For example sauces simmer, herbs are being cut… And the temperature is already very high in the kitchen.

The head chef regularly interferes to control his team's work: "Those vegetables are not sliced fine enough and I want the cut to be round. Watch, I'll show you… got it? OK, I don't want to see such things any more". A deep respect for the head chef shows on every face and in the voice of every cooks. Cooks only call him "Chef". The second-in-chief is also in the kitchen since the morning. He too is in charge of controlling the team's work. Everything has to be neat and well organized. Everything must be ready when the first guests arrive. During this moment, the second-in-chief can help a cook or another to get ready, but he mainly concentrates on the whole team being in condition for the sitting. He also is the one who implicitly indicates cooks that they should be in position and concentrate as the first guests are to arrive soon. At this moment everyone checks his clothes and some put on their hat. Silence reigns in the kitchen. It feels like the sitting to come is unusual or like it is the first time. The tension and the concentration seem so intense that one can hardly believe that the same "scenario" is performed daily.

12:45pm: the first guests arrive. The second-in-chief announces the table order. Each of the cook concerned by the course (an average of 4 persons) then yells "yes", which means that the order is taken into account and prepared. A few minutes later the meat chef yells: "two minutes at window". All the ingredients of the course have to be cooked in order to be at window simultaneously (in two minutes) and be assembled by the second-in-chief.

The head chef enters the kitchen. He informs the kitchen staff that M. X (a regular guest) is having a drink at the bar and whishes to have lunch in the restaurant: "what shall we cook for him today? What do you suggest? A sole Dominique? It's a good idea. And what do you think for an entree Jacques? OK, you do the Three Courgettes and a Sole. Do it well, well. Come on guys here we go!" Then the head chef decides (it seems a random choice) that today he is going to cook with the meat chef.

1:30 It's the busiest time. The dining room is full with 42 clients, 36 of which arrived nearly at the same time (in 10 minutes time). Things rush. Coordination is spectacular. It is necessary but also is very sophisticated. At this moment, domain chefs and their cooks seem to be in another world. They are incredibly and perfectly concentrated and coordinated. The second-in-chief orchestrates. We can hear many "yes" coming from different places in the kitchen but the second-in-chief does not get lost. He remembers every orders and knows exactly who is supposed to yell "yes" and when. He also knows exactly which courses are supposed to arrive at window and when. He has to remember everything, at the same time that he assembles courses in the plates. In addition, he

manages some particular courses (especially fishes and poultry) which are expedited to the dining room to be presented and then come back in the kitchen to be boned.

Sometimes, a cook asks others to talk in a lower voice so that he can have a better concentration. At one moment, the second-in-chief was busy with something else and a waiter took the plates at window on his own initiative to lay them on a tray. The second-in-chief became furious; he is the only one who can decide to lay the plates on a tray; he is the only one who decides if they can be expedited to the dining room. Of course all the guests at a same table must be served at the same time. It is the head waiter's responsibility to inform the second-in-chief if a guest left the table for a moment.

A moment later something seems to happen with a cook in the meat domain. The head chef reprimands him for having cooked a too small portion of deer. The head chef will then talk about the mistake many times until the end of the sitting: "It's the last time I see this kind of things. I don't understand, I'm here, the chef's here [he talks about the second-in-chief], ask us, don't do that alone, it's the last time". As the first orders arrive for dessert, everything calms down and the atmosphere is more relaxed. Those courses do not require the same degree of coordinationand are not prepared in the same area (pastry area is downstairs). Soon the head chef leaves the kitchen for the dining room to visit the guests. At the end of the sitting the tidying up is very fast. Two minutes and it's over. The cooks have cleaned up their cooking space, everything is neat and they leave. They are exhausted.

At first sight, this observation may leave perplex in front of the contradictory sense it allows. Practice appears to be a mix of perfectly mastered actions, repeated times and times, and improvisation (when the chef decides at the last moment the meal for a regular customer, not enough peer; or when chef improvises meals during the sitting for "carte blanche" orders[3]); a mix of military structure, with strict rules and organization, highly coordinated actions, and uncontrolled and undesired actions (wrong initiative of a cook, too-thin sliced vegetables); the coordination mechanisms also strike the observer. Everybody looks as if they were working by their own, realizing their own part, but the practice appears coordinated through codified signs, and very short but efficient messages and reaches a high degree of synchronization. All these contradictory first remarks confirm that we can't consider knowledge as something explicit, verbal, cognitive, and universal. Bourdieu's logic of practice provides a framework to explain the complexity of knowing in practice.

6. COOKING AS A GAME : INTERPRETING PIERRE BOURDIEU'S LOGIC OF PRACTICE

The use of Bourdieu's conception of habitus and practice appears relevant to understand the deeply tacitness of knowing, the mix of strict rules and improvisation, the coordination mechanisms observed. Understanding the particularity of chefs habitus, as opposed to other s cooks habitus, helps us understand why chefs are chefs, it means how they reached this high level of excellence.

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[3] "carte blanche" is an order for which the customer lets the chef decides the entire composition of the meal. In some Grand Restaurant, it can reach 40% of the orders.

6.1. THE CONCEPT OF HABITUS

As a former rugby player, Bourdieu often uses the metaphor of game to convey his sense of social life. By game, it does not mean entertainment but the practice of a game by a strongly involved athlete, who competes with others and his own limits. Practice is motivated by serious stakes, and everyone is convinced to be a part of a larger system, not only their team, but also the game by itself, with its rules and actors.

Our practice of the game is conditioned by our habitus, which is our knowing in practice, the knowledge of the game we have constructed previously, and which is reconstructed during the game. Habitus is a "structured structure predisposed to function as a structuring structure" (Bourdieu 1980, p.88). As a "structured structure", it is the result of initial capabilities, the application of integrated rules of the game, knowledge acquired through past experience. Habitus is strongly rooted in our bodies, and at first sight can appear as an automatic "stimulus-answer" scheme. However, Bourdieu insists on the impossibility to dissociate the automatic from the reflexive part of habitus, as well of its cognitive from embodied, objective from subjective, theoretical from empirical ones.

However, habitus is a dynamic concept and a "structuring structure", it is an art of inventing rather than a catalogue of knowledge. It includes all the structures which allow to produce an infinite number of practices, even if these practices are limited in their diversity (because they are constrained by our own capabilities, schemes, and also restricted by the rules of the game). As an art of inventing, habitus allows improvisation. This is the base for practice because contexts and situations always vary. Even if we can find previous frames and compare situations one with another, we never twice with exactly the same context, and practice will always have to differ. Improvisation is also necessary given the "emergency of practice". While practicing, we have no time for deep thinking. Thinking over practice will occur during training, not when performing, would it be a football game, a theater representation, or a restaurant sitting. During practice, actors are completely concentrated on the game, they are taken by the game. Practice is oriented towards the finality of the game. As a matter of facts, actors are not concentrated on what they are doing, but on what they will do. "the one who is taken by the game does not adjust to what he sees but to what he foresees, sending the ball not to where his partner is but where he will be after shooting." (Bourdieu 1980 p.157)

6.2. HOW CHEFS REACH SUCH KNOWING IN PRACTICE: THE IMPORTANCE OF THE SOCIAL ASPECTS IN HABITUS CONSTRUCTION

For cooking as for every practice, habitus is both personal and social : personal, as the result of initial capabilities and affinities of the cook, his/her predispositions for this practice, the mode he/she assimilates and integrates new insights in experience of practice and training; social, by the interaction with people in practice, his/her apprenticeship context and also the way it was encouraged by his/her surrounders, may it be school or family. Of course, habitus is composed by technical skills and not anyone could reach such a level of technical perfection, but this is not sufficient to explain the degree of excellence in practice reached by chefs. Technical skills are a pre-requisite to become a chef, but chefs have something more, that the concept of habitus can perfectly explain, due to the social context of the development of the habitus.

Firstly, Bourdieu insists on the importance of our environment responses to our first practices. The way others consider our playing this game influences our self-confidence in our possibilities and our involvement in the game, taking it seriously or not. In the field of grand-restaurant, this is all the more obvious that cooks, as well as athletes, have to engage soon in the game, being apprentice between 13 and 16. Among French Three Stars cooks, a large majority was raised in a grand-restaurant context, with parents or grand-parents being chefs themselves, and taking cooking as a serious play. Some of them even had no choice but becoming chef. As chef A related it : "I didn't like this job at all, but I did it almost constrained by my family". To be raised in a "cooking environment" helped them to develop some technical skills, but it all the more engaged them to take cooking as a serious play. Taking the game seriously is basic to concentrate on practice and then develop a high degree of excellence. This is a pre-requisite to develop and improve habitus in the game. "As in other forms of competition, I think there is the passion for willingness. You have to be psychologically strong." (Chef A interview). "You need obstination", asserts another one. They want to perfect their cooking, they do want to reach a high degree of performance and work hard to increase the quality of their cooking. Before reaching their level of excellence, they go through periods when they work 18 hours a day, sometimes work at night to increase their skill in one field. Chef A related that he worked "at night because I could'nt master chocolate technique."

Concentrating on practice, future chefs and chefs develop a reflexive knowing, by training and try-and-test experiences. They spend a large part of their time to analyze their practice. Chef A keeps a large part of the morning for reflexive thinking, and another one tells : "I like these moments when my mind goes away, they are necessary" (Chef B in Palais Magazine). He often stays at home, in his own kitchen, to try something new, make some experiences. This allows them to perfect their meals and also to innovate. This is time for creation. They feel inspirated by their practice, by mix of products, but also by arts. Chef A is found of paintings, others are found of music, sculpture, one happens to work with a perfume creator, and tries to interprate the fragrance in meals. They remain open to different modes of expression, and they also stay aware of the original ideas and different skills of their team cooks. They stay aware to find out the personal pieces of habitus a cook could bring to the practice of the team. Chef A acknowledges that "their initiative, their own profesional experience [...] can bring an idea, [...] a technique. My second-in-chief, who has been working with me for a very long time gets a better technique than I. He can shell crabs at an incredible speed." As a matter of facts, they capitalize on every new source of knowing, may it be arts, experiences of other cooks, their own experience.

The context of chefs past practice is essential too. Most of chefs were trained in famous restaurants where they acquired the best technical skills, but all the more they could assimilate what is a grand restaurant, it means the rules of the game of Haute Cuisine, and the possibility to develop an habitus which will fit the criteria required by the field, and the capacity to fullfill the requirements for Michelin three stars. As the performance is arbitrated by clients and overall by Michelin Guide critics, they have to be aware of the requirements of these evaluators. The rules of Grande Cuisine are not written in books, they have to practice in an environment which will fit the rules, in order to assimilate them. They learn about organization, supply, management, how to do up a restaurant, a dining room. It is where they acquire what Bourdieu calls a "sense of practice", which is the very tacit and empirical element of habitus, that could not be taught at school, and can get constructed only through practice.

6.3. COORDINATION BETWEEN KNOWING IN PRACTICE : HOMOLOGY RELATIONS AMONG ACTORS.

In the collective framework of practice, actors develop a sense of practice as mobilizing their habitus during practice. New modes of coordination arise, because they develop a particular knowing of others' participation to practice, an understanding of other actors which allows coordination with few words, few signs. This is what Bourdieu calls "homology relation", that means diversity in homogeneity, which reflects the relations between habitus of the different actors. Cooks, chiefs, apprentices are involved in the same game, leading the same rules of the field of Haute Cuisine. Habitus are different, but similar enough so that actions in practice are understandable by all the actors, who have developed a similar sense of practice. In this perspective, communication during practice remains at a very automatic stage, cooks do not need too many words to explain what they do, "their practice and output are immediatly understandable for the others, then considered obvious and taken for granted. Habitus allows an economy of intention, not only in production, but also in the interpretation of practices and outputs" (Bourdieu 1980, p.97). Repetitiveness of practice, more than the explaination of codes, develop these coordination mechanisms.

In Chef A's restaurant, coordination modalities are based on few words, such as "running?", asked by the Second-in-chief as soon as he announces a dish ordered. Then, the concerned cooks just reply "yes", and the Second-in-chief announces another dish, as if he hadn't wait for answers (but he did, because if it happens that one cook does not answer, the Second-in-chief asks him directly). This announcement takes less than three seconds, and onother order is announced. During cooking time, coordination is necessary to be sure that all the components of a dish will arrive at the same time at the window. The main domain chef concerned by a dish (for instance, the fish chief), announces the time to be left before the main element is ready (such as "the sole, two minutes"). It doesn't need to list all the components, everybody knows them. All concerned cooks reply "yes, two minutes". Exactly two minutes later, everything will arrive at at the window. The other orders from the same table will arrive at the same time.

Such synchronisation during cooking times is possible because of an important preparation at other times. Sitting is as a performance of a play whose coordination is elaborated before and after, for the next performance. Cooking practice widely overpasses sitting times.

CONCLUSION

This analysis of cooking practice in a Grand Restaurant shows the differences among actors, and particularly between a Three-Star Chef and other cooks. We can understand these differences if we consider that knowing is more complex that is often presented. With a constructivist perspective and on the ground of Bourdieu's conceptions of habitus in practice, knowing is more than a knowledge that we possess, it would rather be considered as something we do. Knowing in cooking practice is a mix of personal predisposition, knowledge acquired through strong training and repetitive practice, knowledge of the rules integrated and internalized by cooks, knowledge acquired through reflexive thinking on practice. Cooking knowing is highly tacit, embedded in physical activities, and actually

bridges theory and practice, subjective and objective knowing, technical skills and rules enforcement, knowing both in body and mind.

We drew our analysis on a single case here. Other cases are under analysis. Through the comparison of cases, we will try to enrich our analysis. As knowing is difficult to observe and then to find out, the multiplication of observation will allow us to discover unexeplored aspects. We can also focus on new problematics : will the chefs have all the same knowing scheme? In which aspects knowing differ from one organization to another? We will also try to understand the dependance of the organization on the Chef, and for example why some restaurants can stay open while the Chief is not there while others have to close. Moreover, it would be relevant to link our knowing-in-practice analysis to other organizational theory and strategic management points of interest, such as knowing-network and communities of practice, analyzing the links between three-stars Chefs and between three-stars chefs and their previous second-in-chief.

This analysis of knowing may be extended to many practices. In particular, we could compare with practice in other professional organizations, where knowledge and knowing are essential for the structure of the organization and the whole industry. In artistical fields (such as an orchestra, or a ballet dancers company) or in other fields (such as a surgery team or a consulting firm or a lawyer company). For Grands Restaurants as for these organizations, analyzing their knowing-in-practice is essential to increase their performance, from the development of such practice to their valuation on the market, through the question of "knowing practices", for example apprenticeship, in the community and its effect on the emergence of key actors, such as great Chefs.

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