

ANALYSIS OF THE EDUCATION AND TRAINING OF HAUTE CUISINE CHEFS: IS THERE A COMMON PATTERN?

ABSTRACT

This study examines the haute cuisine chefs' education and training in order to identify a common pattern of training. Specifically, this study investigates the education and training received during the careers of a sample of 60 Michelin-starred chefs in Catalonia, a Spanish region recognized for its gastronomy. To conduct the study, a qualitative methodology was adopted and a semi-structured questionnaire was used to interview the professionals. The results show that the studies in hospitality schools are important to cement the basis of knowledge, but internships and work experience are also relevant ways to acquire explicit and tacit knowledge to succeed in this sector. These findings have allowed the identification of three different clusters of haute cuisine chefs also considering age and experience. This paper contributes to the research by analyzing the education of a group of professionals and identifying a common pattern of training in a growing sector that contributes significantly to national economies.

KEYWORDS

Haute Cuisine; Michelin Stars; Education; Training; Restaurants; Lifelong learning

INTRODUCTION

The restaurant sector is a key contributor in developed economies, employing millions of people worldwide and playing an important role in the tourism industry. In the United States (US) for example, the restaurant industry employs more than 15 million people and generates about the 4% of the US Gross Domestic Product (GDP) (National Restaurant Association, 2019). In the same way, the restaurant sector has become a pillar of the European economies. In Spain, for instance, it is one of the most active sectors in the country and one of the engines of its economy. It employs more than 1.3 million workers and represents 4.7% of the Spanish GDP (INE, 2019). Nevertheless, it should be mentioned that these figures are prior to the global pandemic situation caused by the disease Covid-19 and, as a result of this pandemic, the current economic model will be deeply affected. So far, the restaurateurs have had to redirect their business, even traditional restaurants have had to offer take-away and home delivery and rely on digital tools for capacity management and contactless payment. Likewise, due to the importance of the sector for the economies, the restaurateurs and chefs will look for more formulas to recover the clients lost during the pandemic (Madeira et al., 2021).

To date, the importance of this industry worldwide has generated a growing body of research on restaurants, particularly on its practices and on their success and failure factors. Regarding the key factors of this sector, Parsa et al. (2005, 2011) and Camillo et al. (2008) proposed specific models suggesting a classification of success and failure factors for the restaurant sector. According to them, the success of a restaurant depends on five groups of success factors: strategic decisions, competitive factors, marketing, resources and capabilities, and owner-manager traits. One of the most important success factors proposed by Camillo et al. (2008)'s model is prior experience and it includes both business experience and culinary experience (Lee, 1987; Haswell and Holmes, 1989; Sharlit, 1990; Agarwal and Dahm, 2015).

Some studies have also analyzed the relationship of experience with education and job-related learning and have determined that their combination is an intangible resource in the restaurant sector (Unger et al., 2011; Lee et al., 2016). This is because in the restaurant industry, the firm performance depends mostly on the owner's or restaurateur's skills and knowledge (Cooper, et al., 1994; Jogaratnam, 2017).

Thus, the literature has mostly analyzed the successful situations of restaurants focusing on restaurant performance such as organizational and marketing strategies (Chathoth and Olsen, 2007; Ham and Lee, 2011), customer satisfaction (Gupta et al., 2007), service quality (Gazzoli et al., 2010; DiPietro et al., 2011) and corporate social responsibility (Kim and Kim, 2014; Lee et al., 2013). Studies have also focused on gastronomic investment (Johnson et al., 2005), restaurateur's entrepreneurship (Davidsson and Honing, 2003; Ganotakis 2012; Lee et al. 2016; Lee and Hallak, 2018) and innovation in restaurants (Ottenbacher and Harrington, 2007; Stierand et al., 2014). However, to the best of authors' knowledge, the researchers' tendency has led to a lack of consideration for knowing how to achieve success, that is how chefs and cooks are trained and what is their training path (Allen and Mac Con Iomaire, 2017; Cooper et al., 2017).

Hence the aim of this paper is to analyze the role of education and training in the careers of chefs in the restaurant sector. It has been considered to focus on haute cuisine chefs since it is a specific relevant group in the restaurant sector whose education has been scarcely analyzed (Allen and Mac Con Iomaire, 2017; Cooper et al., 2017).

In particular, this study addresses the following research questions:

- (1) What kind of education and training do haute cuisine chefs receive and what are the most important aspects?
- (2) Are there clusters of haute cuisine chefs with a specific training pattern? This study contributes to the literature by analyzing how a particular group in the restaurant industry is trained and investigating whether there is a common pattern of training. In addition, the study adds new empirical insights on the role of education and training.

LITERATURE REVIEW

Both academics and managers have recognized that knowledge is a key source of competitive advantage (Grant, 1997, Roy et al., 2017). It is considered as a potentially significant resource for companies, since it may possess valuable, rare, inimitable and non-substitutable characteristics (Polanyi, 1966; Hall and Sapsed, 2005).

There are several ways to classify the different types of existing knowledge, depending on the type of information or the way it is acquired or processed. One of these classifications is the differentiation between tacit knowledge and explicit knowledge (Polanyi, 1966). Tacit (or implicit) knowledge is usually described as "know-how" and in the field of management refers to a knowledge which is not fully codified. It means that is a kind of knowledge that is completely or partially inexplicable, hence it is difficult to transfer verbally or visually (Chugh, 2015). For example, cooking apprentices acquired tacit knowledge by sharing space (kitchen) with their mentors (chefs) that means, by observation, imitation, internalization and practice (Slavich and Castellucci, 2016). Unlike explicit knowledge, tacit knowledge requires the interaction between individuals

or groups to transfer it. Consequently, the key to acquiring tacit knowledge is to share practical experiences in an appropriate context (Lam, 2000).

On the other hand, explicit knowledge refers to a type of knowledge that can be codified, stored and easily transmitted to others (Nonaka and Tekeuchi, 1995; Rutten et al., 2016). The most common examples of this knowledge are procedures, processes, manuals, formal written documents and educational institutions, among others.

In practice, tacit and explicit knowledge are not separated and the interaction between them is crucial for solving complex problems, making business decisions and creating new knowledge (Davidsson and Honing, 2003). Thus, investing in developing human knowledge or building “human capital”, increases the productivity and improve the performance of the workforce (Nafukho et al., 2004).

Lifelong learning and formal, nonformal and informal education

The process of acquiring knowledge, or skills, is defined as learning (Eraut, 2000). It is a process carried out by individuals or groups with the aim of acquiring an ability to do something that previously could not be done or a new understanding of the world (Crick et al., 2004).

When learning takes place throughout a person's life it is called lifelong education (Smith and Spurling, 1999; Blossfeld & von Maurice, 2011). There is no single definition of lifelong learning as it is used extensively in educational discourses and has several meanings (Crick et al., 2004), however there are two aspects that are common in most definitions. The first, as mentioned, is that it is a learning that occurs throughout the life cycle, i.e., it is a continuous process from childhood to old age (Smith and Spurling, 1999; Crick et al., 2004). And secondly, it includes the three main types of learning: formal, nonformal and informal education (La Belle, 1982), , what has been known as the trilogy of education.

Historically, the trilogy of education has its origins in the International Conference on the World Crisis in Education in 1967 in Williamsburg, USA (Coombs, 1968). Its diffusion took place between the late 1960s and the early 1970s, however in the mid-1970s, some authors began to identify some weaknesses of this first version of the trilogy (Sirvent et al., 2006) and attempted a more complex approach by considering variations in educational experiences, taking into account different aspects or dimensions (Coombs, 1985).

Following the pioneering works of La Belle (1982), Eraut (2000) and Eshach (2007), and framed within the guidelines of the European Centre for the Development of Vocational Training (Cedefop) of the European Union (2014), a proposal of their definitions is presented in Table 1.

(Insert Table 1 here)

This table classifies the three most common types of education. However, within each type of education there are several cases and examples. Analyzing the types of education that chefs receive, of interest in this paper, will enable the understanding of the most

important aspects of their education and training and to identify the common elements in the haute cuisine sector.

The role of education in the restaurant sector

Education, professional experience and job-related learning are three of the most important intangible resources for restaurants (Unger et al. 2011; Lee et al., 2016; Jogaratnam 2017). Their combination facilitates the achievement of competitive advantage because of its embeddedness in organizational routines and therefore, its difficulty to being imitated (Hitt et al., 2001; Jogaratnam, 2017). In independent restaurant ventures for example, the performance depends mostly on the owner or restaurateur (Cooper, et al., 1994; Jogaratnam, 2017) and therefore, he or she becomes the main resource to generate sustainable competitive advantage in front of competitors (Hitt et al., 2001; Davidsson and Honing, 2003; Kraaijenbrink, 2011) and improve firm performance (Lee et al., 2016; Lee and Hallak, 2018). Hence, his or her knowledge, experience and qualifications represent important assets to consider to succeed in the restaurant industry.

This fact has been studied in the literature and after analyzing the success and failure in restaurants, some studies consider that education and training of restaurant professionals are success factors in this sector (Allen and Mac Con Iomaire, 2017; Bernardo et al., 2018). For example, Parsa et al. (2005, 2011) proposed a model to increase the likelihood of success in restaurants and Camillo et al. (2008) added emotional and leadership factors to Parsa et al. (2005, 2011)'s model. In both, education, training and prior experience are identified as factors to avoid the failure of a restaurant venture (Agarwal and Dahm, 2015; Lee and Hallak, 2018).

The last dimension proposed by Camillo et al. (2008)'s model, was *Owner-manager/chef features* and it includes factors related to the characteristics of restaurateurs or chefs that enable the success of restaurants (Bernardo et al. 2018). One of them is prior experience and it can refer to business experience (Lee 1987; Haswell and Holmes 1989; Sharlit 1990; Camillo et al. 2008; Agarwal and Dahm 2015) or culinary experience (Agarwal and Dahm 2015) both crucial characteristics for a successful manager.

Education and training of chefs

Researchers have tended to consider the restaurant sector as a whole (Cooper et al., 2017), mostly analyzing the impact of education and training on restaurants owners. Nevertheless, recently the haute cuisine sector has attracted the attention of academics and a few studies have investigated some aspects of chef training. Slavich and Castellucci (2016), for example, explore the relationship between apprentice's and master's products, and critics' evaluations. In this article the authors highlight the importance of apprenticeships or internships as mechanisms not only to transfer knowledge and skills but also to affiliate with celebrity chefs. Gray and Farrell (2021) also investigates chef internships but in this case, they tackle the lack of uptake of apprenticeships among industry representatives and second-level students in Ireland.

The training of professional chefs has also been analyzed by Pang (2017), differentiating between professional training with famous exponents of cuisine and vocational culinary training. Additionally, Herdenstam et al. (2020) has also analyzed other aspects related

to training in haute cuisine. In this case, the authors study how analogical training and the reading of classical books affect the communication skills of chefs and sommeliers.

On the contrary, other studies have not focused on a specific element of the training of chefs but for example, Suhairom et al. (2019) identifies 6 culinary competencies that need to be emphasized in the training and education of gastronomic chefs in order to develop a sustainable career in this sector. Finally, other authors have also been interested in the perspective and expectations of students about the chefs' trade and how the popularity of male chefs seems attract more male students to cooking programs (Steno and Friche, 2015).

However, although the body of knowledge about the education and training in haute cuisine has increased, the interest is still scarce. To the best of authors' knowledge, the existing literature suggests that the role of education and training in chefs and specifically in haute cuisine has remained little investigated (Allen and Mac Con Iomaire, 2017; Cooper et al., 2017). So far, the studies have focused on specific aspects of training but have not fully analyzed the education and training of haute cuisine chefs. Hence, this study aims to focus on the education and training received by haute cuisine chefs in order to identify what kind of education they receive and how important is each type of education – formal, nonformal and informal- in their careers (1). With this information it would be possible to determine whether or not there is a common training pattern in this sector (2).

DATA AND METHODS

This study is part of a larger research with the overall aim to analyze the main reasons for the high concentration of haute cuisine restaurants in Catalonia (Bernardo et al., 2019). In particular, in this current study, the researchers focus and deeply analyze the education and training of the chefs to explain the phenomenon (Figure 1).

(Insert Figure 1 here)

In order to achieve the study objective, a qualitative methodology was adopted (Denzin and Lincoln, 2011). This is because this methodology provides a wealth of detailed information facilitating the understanding of the topic analyzed (Patton, 2002; Saunders et al., 2003).

Sample

The participant's selection was based on an existing and recognized sample of restaurants, which is the Michelin-starred restaurant list for Spain and Portugal. Specifically, the latest editions of the Michelin Guide for these countries show a geographical concentration of starred restaurants in Catalonia (Michelin, 2021). For example, in the last edition of the Guide, Catalonia has 61 Michelin stars distributed among 55 restaurants, which means a 25% of the total starred restaurants in Spain (the most awarded region of Spain, followed by the Basque Country and Madrid).

In order to achieve the objective of the project, it was decided to use the Michelin starred restaurants list in 2013. During that year and the following year, most of the interviews were conducted. However, some changes in the list occurred during the study and it was decided to add the new awarded restaurants until 2017. Hence, the study has the majority of Michelin star restaurants in Catalonia today. Finally, to complete the sample, it was decided to include four more personalities, three chefs without a star at the time of the study but who had had it in the past and the director of the Alicia Foundation, a private non-profit foundation with the aim of studying Catalan cuisine and generating knowledge.

The final sample was built up with 60 participants. Table 2 summarizes and classifies it.

(Insert Table 2 here)

Data collection

Following a qualitative methodology, data was collected by in-depth, inductive, semi-structured interviews (Yin, 2009). The researchers sought to build-up trust and rapport with every interviewee in order to create a relaxed atmosphere facilitating the obtaining of details and the emerging of new topics. In addition, the respondents were assured that the study would be anonymous to guarantee their confidentiality. Whenever possible, the protocol applied in the interviews followed the steps shown in Figure 2.

(Insert Figure 2 here)

All restaurants were first contacted by e-mail, explaining the project and asking about the possibility of conducting an interview. Afterwards, the researchers contacted each restaurant by telephone to arrange the appointment at the workplace of the respondents. In July 2013, a pilot test was conducted in one of the 3-Michelin stars restaurants to pre-test questions and to measure the time needed to perform the interview.

A semi-structured questionnaire (Yin, 2009) was used for all the interviews conducted. This questionnaire contains information on six different aspects (see Table 3).

(Insert Table 3 here)

At the end of the questionnaire, the respondents were also asked to rate from most to least important (from 1 to 6) these aspects in order to know the importance they have in the career of a chef. In addition, the researcher was free to ask for further details or clarifications during the interview while ensuring that the main topics were covered (Lofland and Lofland, 1995).

The average interview time was sixty minutes and included the education and training questionnaire and another questionnaire on the relationships between chefs. All the

interviews began by explaining the objective of the project and asking for permission to record them. Later, the interviews were transcribed verbatim in order to facilitate analysis (Jennings, 2005). Finally, a case study was written for each restaurant and then sent to each chef in order to verify and validate the content (Yin 2009). It should be mentioned that fifty-seven interviews were conducted face-to-face, two were self-reported and one was done via Skype. In addition, information of the restaurant websites and press news were also used to write the cases.

Data analysis

In order to achieve the purposes of the study, it was decided to carry out a '*thematic analysis*', what means identifying clusters and themes in the data using a process of coding (Cooper et al., 2017). Hence, the data from the 60 interviews were codified according to the types of knowledge (i.e. tacit or explicit) and the types of education (i.e. formal, nonformal and informal) found in the literature review. Then categories were developed from groups of codes, in turn generating themes and clusters from these categories. Once the themes and clusters were generated, the authors managed to group the chefs based on their common characteristics and assign them to one of the three identified clusters. The final sample of the clusters was 53 chefs since 7 of them were considered outliers (not assigned in any cluster) because they did not meet all the characteristics of any of the groups.

It should be noted that the authors immerse directly in the data without the aid of specialized software (i.e., NVivo) since their intention was to engage with the data allowing a deeper understanding of the themes. Nevertheless, in order to guarantee the highest levels of rigor, some measures of validity and reliability were taken during the research process (Ryan et al., 2015). A teamwork approach was maintained throughout the project (Morse, 1994) and adequacy was achieved by ensuring that sufficient data were collected (Glaser and Strauss, 1967; Morse, 1994). Moreover, the expressions and vocabulary used by the participants was maintained in order to ensure the highest level of understandability (Glaser and Strauss, 1967).

FINDINGS

The results of the 60 interviews and their analysis are presented below. In this section, the results are shown in two blocks, on the one hand the issues and topics that emerged in the thematic analysis and on the other the clusters identified to classify the participants.

Thematic results

Following the work of La Belle (1982) and Eraut (2000), the aspects analyzed in the interviews have been classified according to the types of education and the types of knowledge that can be acquired (Table 4).

(Insert Table 4 here)

In addition, as mentioned in the previous section, participants were asked to rate each aspect of their training according to the importance they had in their professional careers. This rating allows to establish a ranking of what aspects are considered a priority to become successful chefs (Table 5).

(Insert Table 5 here)

As shown in Table 5, 40% of the study participants consider that *Work experience* is the most important element in the training of haute cuisine chefs, followed by *Formal education* (24%) and *Internships* in other restaurants (21%). These rankings are confirmed in the second and third place, *Formal education* is considered the second most relevant element by 44% of chefs while 36% of them classify *Internships* in third place. Out of the top 3 there are *Other ways of training*, *Conferences and professional meetings* and *Additional education*, which although they have an impact on their training, are not considered the most significant for their careers.

Below are the most important issues ordered according to the ranking that emerged from the analysis of the interviews with the participants. Note that it has been observed that both chefs with 2 or 3 stars and for chefs with 1 or no stars follow a similar training itinerary, with the exception of formal education, no other differences are identified.

Work experience

As previously defined, work experience consists of professional experiences in other restaurants with an employment contract and as Table 4 points out, they are a type of informal education in which chefs mainly acquire tacit knowledge through their daily work life.

Regarding the rating, work experience can be considered as the most important element in the professional careers of the chefs analyzed (Table 5). Although it can be acquired in different ways, most of interviewees see work experience as a cornerstone for their future. As some chefs commented, the fact of coinciding with a great chef has been a tipping point in their career:

“He gave me the approach to the cuisine that I currently do, the way to see the job, the business and the restoration”.

“[Regarding the different stages of my career] I started with a type of cuisine, then I evolved towards another and now I run towards another. Start with the typical: salad, grilled meat, if you're on the mountain, and little by little you are interested in another type of cuisine.”

Two different groups can be identified based on the professional experience of the chefs:

1) Own restaurant: chefs who acquired their professional experience entirely in their own restaurant or in the family business are in this group. The members of this group began helping their relatives and some years later they took over the family restaurant. Working

in their restaurant has helped them to assume responsibilities and learn to manage teams, among other aspects. Regarding the role of the family, one chef comments:

“When I was a kid, I used to help in the family restaurant and now my family helps me in my restaurant. This is very good, this is what makes it easy for me, I can be in the kitchen and they can be in the dining room attending to all the clients of the events. I am very calm because I know that if you come here to celebrate your mother's birthday, I know that the owner will attend you. We are all very involved, and I am doing very well because I do not have to worry about management or customer service. We are a great team. I am lucky to have them, if not, it would be unthinkable to do what we do.”

2) Other chef's restaurant: chefs who have worked in other restaurants both national and international. Working in various restaurants has enabled meeting other chefs and share concerns about cooking:

“For me all the places where I have worked have been important, because I have learned from everyone.”

“Since I was 15 years old, I have been traveling and working. I've been in England, in France, etc. Since I was 18 years old I am in restaurants with stars.”

Formal education

As shown in Table 4, Formal education is a type of formal training in which individuals acquire explicit and tacit knowledge such as process, procedures and techniques in a regulated, intentional and planned way (Eshach, 2007). In this case, Formal education corresponds to training courses longer than 6 months (usually and depending on the time, between 4 and 5 years) in professional schools or other educational institutions (Table 3).

Regarding the chefs of the sample, 72% of them have attended education training courses related to cook in hospitality and catering schools (Table 6). They consider that culinary training is one of the most important elements in the development of the cook's career (Table 5) as it provides the basis of knowledge:

“Technically it is very good, they teach you many things, such as rigor, what are the schedules, etc. They do not teach you how to cook because, from my point of view, it is very difficult to learn to cook, they teach you how ‘to be a cook’”.

In this case it should be noted the difference between the chefs with 2 or 3 stars from the chefs with 1 or no stars. While in the first group of chefs, four of five chefs have studied formal cooking courses in hospitality schools, in the second group there are also self-taught chefs and chefs with other formal education. The three groups are explained below.

(Insert Table 6 here)

1) Formal cooking education: they are chefs who have attended formal cooking courses in hospitality during their professional career. In some cases, studying in these schools opened the door to meet great chefs and thus begin in the world of gastronomy:

“I went to the hospitality school. I was lucky to have two teachers who made me see and think a little about the things in the kitchen. This made me begin to be passionate about the essence and tradition of our cuisine, for the traditional recipe book.”

2) Self-taught training: they are chefs with no professional schooling and therefore with a self-taught training. In this group, the seniors did not attend cooking courses because of the limited availability of cooking programs when they started their careers, and the youngers trained themselves in the family restaurant or with other chefs:

“[...] when I started working, there were no hospitality schools here [in Spain]. So, my parents came to this town and I started working at a friends’ bar and four days after I realized that I had chosen what I really liked. I have always worked with great chefs who have been my teachers.”

“I didn’t study anything because I wasn’t sure about it. I spent 2 or 3 years without a definite place, helping my mother at the bar, in the restaurant, until I started in the kitchen.”

3) Other formal education: in this group there are chefs without cooking education but with other studies (i.e., Commerce, Management or Microbiology) who have learned cooking with great chefs or in the family business:

“Surprisingly I don't have cooking studies, I studied microbiology. My mother and my grandmother taught me cooking when I was a child.”

Internships

The internships or *stages* are periods of training in other restaurants. They are quite common (71%) and are considered the third most important element for chefs as it is a practical way of transmitting explicit and tacit knowledge from mentors to students.

As mentioned in Table 3, currently internships are an obligatory part of cooking studies. However, many of the participants studied previous cooking courses in which internships were not mandatory. For this reason, two types of internships can be distinguished, the compulsory *stages* that are part of the current study plans and therefore they are considered as a type of Formal education, and those voluntary. The main objective of the first type of internship is to put into practice the theory and knowledge acquired in hospitality school. The other type of internships are the stays that many chefs do to start in the cooking world (i.e., Other formal education and Self-taught training groups of *Formal education*), learn techniques or increase experience. In this case it is considered as a type of nonformal education since is not carried out within education institutions (Table 4).

Regarding the chefs with 2 or 3 stars, not all of them did an internship (formerly, they were not compulsory in formal cooking studies) but those who did, used them to complete and perfect their expertise. The practicum of this group can be divided into trips to French restaurants to learn with great chefs (i.e., Michel Guérard and Georges Blanc), and internships in important Catalan restaurants such as Can Fabes, El Celler de Can Roca and El Bulli. This last one was frequently visited by the chefs when it was open and they stayed for some days training with other chefs:

“Internships have been really useful for my training. In my case I have been in France with Michel Guérard, in El Bulli and in El Celler de Can Roca. In France I spent four months, in El Bulli I made five stays (three months) and in El Celler de Can Roca one month.”

“They consisted of being there all day, cooking and eating and talking with Ferran [Adrià]. The first time I did it is when he cooked white rice, curry chicken, etc., at the beginning, when I saw it, I thought: what is it? but then it captivates you so much that you want to continue going.”

Unlike the previous group, most of the chefs with 1 or no star have done internships at other restaurants. The current generation of chefs, who most of them have formal cooking studies, have done placements to continue their training:

“I have always worked in my business but I have done some internships in other restaurants. I did placements for two months in two restaurants when I was in the third and fourth year of my studies.”

Whereas the earlier generations and chefs without cooking studies have used them to start working or to increase their experience:

“I went to stays, during the holidays, I spent some days in some friends’ restaurants because I wanted to see what they did, I needed to be inspired.”

Some chefs of the earlier generation also made trips to France with the chefs with 2 or 3 stars to learn how to organize large teams in the kitchen:

“I went to France, five days in Paris and five more days around France to see their teams. I had never seen a large human brigade and I wanted to design my kitchen according to our needs.”

Both of them highlight renowned and traditional Catalan, Basque and French restaurants as the best places chefs could visit to improve and evolve in their cooking.

Other ways of training

The interviewees were also asked about other ways to complement their training. These ways can be considered as type of informal education since individuals acquire unintentionally knowledge through their leisure time or daily routines (Table 4).

As stated by both groups of chefs, there are several ways that provide a continuous training but the following stand out above the rest.

The first one is to read gastronomic magazines and books, and also follow Internet blogs and websites:

“I follow some blogs, and read books and magazines specialized in gastronomy. For me it is very important to keep up to date with the most innovative thing that is done in Spain and everywhere, because my obligation is to introduce elements of reflection, to see if

there are things that can be applied to us at some point, if there are lines that allow us to evolve within our style and our cuisine, etc.”

“We read a lot, we buy the latest books, the chefs are very curious and we know what is being cooked in Chicago and what is being cooked in Hong Kong and what is being cooked here. Today we have the information on hand, Internet, YouTube, etc. What happens today is known tomorrow in the rest of the world.”

Another usual practice to complete their training is to travel to meet new products, tastes and cultures and as far as possible apply them to their cuisine:

“Another very important issue in our sector is to visit other restaurants and travel. If I hear about a place on the other side of the world, as far as possible, I will go.”

Eventually, another way is to know what other chefs are doing by visiting their restaurants like a typical customer:

“For me the biggest learning is to eat at other restaurants. I mean go to all kinds of restaurants but especially gastronomic, which can be both creative and traditional cuisine restaurants.”

“I think it is very important that cooks eat. A chef who does not have taste is like an opera singer who is off pitch, that is, he can be technically great, but not having taste. With having taste I mean appreciate what is really good from what is not. Having taste is very important, so going to eat at restaurants is very important to know not only what others do, but also to train your palate.”

Conferences and professional meetings

The following aspect is Conferences and professional meetings. It includes culinary congresses, fairs, meetings, workshops and seminars where the chefs of the study have participated either as attendees or as guest speakers (Table 4).

In this study, conferences and professional meetings are classified as nonformal ways to obtain explicit and tacit knowledge: they are not performed by any educational institution so they are not explicitly designed as learning (in terms of objectives, time and support).

First, it should be commented that conferences and professional meetings have a double function. On the one hand, as the gastronomy sector has no patents or intellectual property rights, presenting new creations and techniques in these meetings allow the chefs to register their originality in front of the sector as well as recognizing others:

“For example, if in a congress, in a part of a dish, we have applied a technique from another chef, we say it and the chef appreciates it. I think it is a necessary exercise of honesty. The more important you are, the more responsibility you should have with these things and the more you have to do them. They are details, because you could ignore it and nothing would happen, but if you do it is a turning point that is very important at the collective level, to generate a good relationship and gain the respect of your colleagues. This is an exercise that many of us try to do because we think it is very important to do it.”

On the other hand, conferences are also a meeting point for professionals of the restaurant sector and frequently they are the starting point for transfer knowledge and collaborate:

“Above all, the first congress I attended left a mark on me. It was in Madrid, I was very young, and it was a congress where there was only Adrià, Arzak and Le Cordon Bleu.”

All the chefs with 2 or 3 stars declare that they participate or have participated in these professional meetings, first as attendees and then as speakers. They present their new culinary creations and techniques but also, they talk about their managerial experiences and other practices beyond cuisine:

“We all participate in congresses, we are all there, because all of us here [in the survey], coincide as speakers, when you already have 3 and 2 stars, sooner or later, you have to do your presentation in a congress. Now we not only have to cook in the kitchen, but also we have to take part in congresses and we have to develop communication skills, which is something that has never happened before”

The theme of conferences and professional meetings in the group of chefs with 1 or no star is slightly different from the previous group. In this case, there are chefs who also participate in the conferences, even some of them are promoters and organize their own meetings:

“I realized that there were no gastronomic conferences here at that time. They were held in France, and I decided to create these gastronomic conferences to introduce my cuisine.”

However, there are also chefs who prefer not to attend rather than closing the restaurant every time they want to attend an event:

“[Congresses] are worth a lot of money, a lot, because you have to consider the trip, the accommodation, the congress fee, all the meals you make outside of the congress, etc., it is quite expensive. And there is the main handicap for me: I have to close the restaurant to do anything, I don't have a big staff who takes over the business.”

Both groups highlight national congresses taught by cooking schools or great chefs but also congresses held internationally:

“I have been to small chefs' congresses: Mesef which is in Switzerland, Capri which is in Italy and Courmayeur which is in Montblanc. These three have been fantastic, with very interesting experiences because they are very small congresses, where you have a very direct contact with great chefs, of whom I have books and who would never have thought to talk to them.”

In addition, some chefs of both groups are members of associations (i.e, Euro-Toques or Slow Food km0) where they can meet other chefs and learn about the proximity product and the cuisine of their area:

“In the association we are friends cooks that we have our own restaurant and we really like to eat. We have dinner together and talk for hours, we exchange opinions, ideas, etc., we complement each other.”

Additional education

Finally, the last aspect rated by the participants is Additional Education. This kind of education is classified as a type of nonformal education to obtain explicit and tacit knowledge outside the traditional education system (Table 4). Specialization and complementary courses to formal education with an average duration of less than 6 months are the most typical in this category.

The realization of these specialization courses is less common among the professionals of the sample (43%). Only two of the group of five chefs with 2 or 3 Michelin stars, have attended this kind of courses. Similarly, 41% of chefs with 1 or no stars, have attended schools or workshops to specialize in specific disciplines such as pastry, vacuum cooking, sushi, or bread and chocolate, among others. This fact shows that a significant number of chefs are interested in continuous training:

“I did a specialization course in Mediterranean cuisine, which was about the history of Mediterranean food in general. They gave you a lot of information about the reasons. It was two hours a week for some months.”

The most important were the courses held in the restaurant El Bulli with Ferran Adrià until 1999. Each course lasts three days and was aimed at professionals from the restaurant sector:

“I think Ferran Adrià helps you to dream, to see new things. This breakthrough is because someone did something that had never been done, he did not know what the consequences would be and what he wanted to say was to get out of the way. And this is unique, but someone had to do it, and it has been Adrià”

To sum up, the education and training of haute cuisine chefs is detailed in 6 aspects. The most important according to the chefs in the sample is professional experience, whether in their own restaurant or in other chefs' restaurant. Next, formal education and internships come second and third. These two aspects are in more than 70% of the sample. Finally, with less incidence but still important, other ways of training, conferences and professional meetings and additional education.

Clusters

As has been mentioned, there are several items that take part in the education and training process of the chefs of the sample and obviously, the training and the career of each one of them is different and particular. Nevertheless, three different clusters with their own training pattern can be extracted from the analysis of the interviews (Table 7). Note that not all chefs of the study can be assigned to a specific cluster and therefore 7 of them are considered outliers since they do not meet all the characteristics of any of the groups identified. Thus, the clustering sample is made of 53 participants.

(Insert Table 7 here)

1. Former studies cluster

The first cluster is formed by 10 chefs, 3 of them belongs to 2-3 Michelin stars group and 7 to 1-0 Michelin stars group. This fact is significant, since it concentrates the majority of 2-3 stars chefs and it is also the only cluster that has female chefs. The age ranges from 37 to 66 years old with an average of 52 years old (Table 7).

The chefs of this cluster have received formal education in cooking schools (Figure 3) and it has been complemented with training internships in French restaurants with Alain Chapel and Georges Blanc, and with visits to El Bulli, Arzak and Martín Berasategui restaurants. As has been commented, the trips and visits to French Michelin starred restaurants were useful to acquire organizational knowledge and management skills to distribute and organize large teams in the kitchen. Complementarily, visits to El Bulli were a meeting point with Ferran Adrià and other professionals of the sector to learn about new techniques and recipes in an open and transparent way:

“When I was 20 years old I took a trip with all these people [Former studies cluster]. We went to Lyon, France, to visit the best chefs in the world and every year we toured the kitchens of the best chefs in the world.”

Regarding their professional experience, it focuses on the family restaurant (Figure 3). They have been able to transform their business into a gastronomic restaurant recognized by critics and culinary specialists. Also, it must be said that they regularly attend congresses and professional meetings as attendees and as speakers and consult blogs and visit other restaurants to complement their training.

Considering the average age (52 years) and experience (32 years), this cluster can be attributed to the great chefs who have been the benchmark for the younger generations of chefs. All these chefs are responsible for the current culinary transformation since they have been pioneers of haute cuisine not only in the territory analyzed but also worldwide. In addition, they have somehow been entrepreneurs and had to start a business and turn it into reference restaurants for the entire sector:

“In fact, I become the chef because of a personal, labor and professional growth of a shop that had already become a delicatessen. When I got married, we came into this shop and we turned it around.”

“We have a pioneer of all this, of all this cuisine, who was Ferran Adrià and we all go after him. I think he is the one who opened the doors for all of us, and after him has come El Celler de Can Roca, Sant Pau, and at the time, Can Fabes.”

2. New generation cluster

The second cluster applies to most of chefs in the sample (55%), that is 32 chefs with 1 or no stars and 1 chef with 2 or 3 stars. From the analysis of this cluster, it can be extracted that despite being the most numerous it does not contain any female chefs and also includes a chef from the group of 2 or 3 Michelin stars. This case is particular since it is a young chef who does not work in his own restaurant but in a business with a long history and with the advice of a prestigious chef (Table 7).

This cluster includes professionals with a regulated education in cooking (Figure 3) who have also made internships but in this case mostly in Catalan (El Bulli, El Celler de Can Roca, El Racó de Can Fabes, Neichel and Jean Luc Figueras) and Basque restaurants (Akelarre and Martin Berasategui). It should be noted that the average age of this cluster is 38 years therefore the Formal education received by these chefs is based on current study programs, which means that internships are mandatory to complete their training. For them, internships have a specific importance because they can put into practice and transfer the knowledge acquired in cooking schools while learning from the most experienced chefs.

Their extensive work but relatively short experience (22 years) has led them through several international and national kitchens before finishing at the restaurant where they currently work and, as in the previous cluster, they regularly attend professional meetings, consult Internet and visit colleagues to improve their training:

“I think that in our profession, if you want to be trained in a positive, real, authentic way that allows you to move alone, you have to go to other houses. But I mean go one year and a half or two years once the studies are finished. At least one year, because we work a lot with the seasons. There is not the same product in summer than in winter, so in the same house, with the same philosophy, with the same cook and with the same techniques, in July you are doing some things and in December others totally different. Therefore, to understand how that cook thinks, how that house works, etc., you have to do a complete cycle of 365 days, turn around and go back to the beginning. If you see that you are doing new things, it may be convenient not to move from that house because you have been working for some time, you are part of the team, if you are competent, you will have responsibilities, while if you go to another place you will start from scratch.”

This cluster corresponds to the most common haute cuisine chef model: young chefs with exceptional culinary training (educatively and practically) and with extensive experience in gastronomic restaurants. Besides, these chefs have had as reference the great chefs (*Former studies* cluster) who in some cases were teachers in the cooking school or chefs in charge of the kitchen where they worked. In addition, it should be noted that the chefs of this cluster have a very relevant role in the socialization and dissemination of the cuisine throughout the territory, as they have been responsible for bringing haute cuisine closer to society:

“My generation is the first professional generation, I mean, we are the best trained generation, because we have been fortunate to be able to study and have worked with the greats [chefs]. The greats have not been able to study, mostly because there were no schools. We have had that luck. We have taken this boom and we have been able to work with who we wanted.”

3. Self-taught cluster

The third cluster includes 10 chefs, 1 of them belongs to 2-3 Michelin stars group and 9 to 1-0 Michelin stars group. As the previous cluster it does not contain any woman and also includes a chef with 2 or 3 Michelin stars (Table 7). In this case, it is a chef with 2 or 3 stars without formal cooking studies but with extensive professional experience. He has also carried out numerous *stages* in France and Catalan restaurants.

The main difference of the third cluster is that chefs have not received formal education in cooking (Figure 3). The 10 chefs of this cluster are, for different reasons, self-taught and in some cases, they have received other formal education not related to cook that have been useful and complementary (Management, Economics, etc.). To fill the lack of culinary education, internships and work experience take even more relevance for their training as they need to learn through nonformal and informal ways. Thus, they have learned the job directly in the family business and/or with great chefs of the moment. This includes Catalan (Santi Santamaria, Joan Roca and Ferran Adrià), Basque (Juan Mari Arzak and Pedro Subijana) and French (Michel Guérard) chefs.

“I always worked with good teachers, the best professionals. In that moment, I didn’t care about the salary but if I wanted to be a good chef, I had to be with the good chefs. I worked with 2 and 1 Michelin stars chefs and I can say that I am a self-made cook. I have not had the opportunity to attend a hospitality school but I have read many books and attended several events in Madrid and in the Basque Country.”

Eventually, they also visit other restaurants and Internet websites to improve their knowledge and participate in congresses with the rest of their professional colleagues.

Although its relatively high average age (54 years) and years of experience (33 years), this cluster includes both chefs of the current and previous generations who have learned from the rest of chefs and have collaborated in the success of the sector through their self-taught training:

“[Regarding his culinary training] I have been quite self-taught and the professional meetings are very interesting because they provide you with original and fresh elements”

“It has served me as an entrepreneur to know what is a price tag, a ledger, the suppliers, the clients, etc. Studying management and administration helped me a lot.”

In summary, three different clusters have been identified (Figure 3). The first one, the *Former studies* cluster, is characterized because all of its members have studied formal cooking studies and also are considered the driving force of the sector. The *Next generation* cluster also has formal cooking studies but they have worked in several national and international restaurants. Finally, the *Self-taught* cluster, has not received formal cooking education but they have learned the profession through professional experience.

(Insert Figure 3 here)

CONCLUSION

This research provides useful insights about haute cuisine chefs by interviewing almost all Michelin-starred chefs’ population in Catalonia, the region of Spain with more Michelin starred restaurants (Michelin, 2021). The research findings presented in this study analyze the education and training of a group of professionals within the Haute Cuisine sector, a growing sector in the restaurant industry. This is one of the main contributions of this paper.

Specifically, the authors try to fill the gap in the literature regarding the lack of studies that analyze the education and training of chefs. Although there are studies that have analyzed apprenticeship and internships (Gray and Farrell, 2021; Slavich and Castellucci, 2016), professional training (Pang, 2017) or even the necessary gastronomic competencies that must be developed during training (Suhairom et al., 2019), none of them analyze the entire education and training of haute cuisine chefs or identify a common pattern of training.

Two research questions were posed at the beginning of this article. The first question (1) addresses the aspects of the education and training of haute cuisine chefs and how important they are to their careers. The identified aspects were 6: work experience, formal education, internships, other ways of training, conferences and professional meetings and additional education. From the study of these 6 types, it can be extracted that education in hospitality schools is very important because it provides the basis of knowledge to achieve success in this sector, although it should be noted that some chefs have not received any formal cooking training and therefore have had to self-taught. Likewise, the internships and/or work experiences are essential, not only to consolidate knowledge learned in formal education, but also to acquire more explicit and tacit knowledge. Many chefs have used internships to start in the world of gastronomy or to increase their experience. In reference to work experience, which differs from internships due to the existence of an employment contract, there are two typologies: professional experience in their own restaurant (or in the family business) and working in other restaurants, with stars or without them. Regarding conferences and professional meetings, most chefs highlight the importance of congresses as they enable the presentation and identification of culinary innovations in front of the sector and also, they are the best place to meet other chefs and start sharing knowledge and collaborating. Finally, three sources have been highlighted by participants as Other ways of training: reading books, magazines and gastronomic blogs, then traveling to other cultures and countries and visiting, as costumers, other restaurants.

Considering the results of the analysis of the education and training of the chefs in the sample, it can be concluded that the education acquired in the cooking schools is one of the factors that foster the success of chefs. However, practical learning such as professional experience, which has been rated as the most important aspect by the participants, and internships have also an important impact on the training of chefs.

Regarding the determination of a common pattern (RQ2), three different clusters with their own training pattern are identified from the analysis of the interviews: *Former studies* cluster, *New generation* cluster and *Self-taught* cluster.

Among the main characteristics of the *Former studies* cluster, it stands out that it contains the majority of 2-3 stars chefs and it is also the only cluster that has female chefs. This fact shows that although the number of women in this sector is limited, some of them also reach the highest positions and are benchmarks for the entire sector. The average age of the cluster (52 years) and the average years of experience (32 years) indicate that they are chefs with a long career and that they have been trained with the former cooking study plans.

The *New generation* cluster is the most numerous (33 chefs) and the one with the lowest average age (38 years) and experience (22 years). It does not include any female chef,

following the hypothesis of Steno and Friche (2015) that currently male students are more attracted to cooking studies. The chefs of this cluster have also received Formal education but with current study plans, which means that internships are mandatory.

Eventually, the *Self-taught* cluster is characterized by not having received any formal cooking education. This means that chefs have had to self-taught and leverage both internships and professional experiences in other restaurants to acquire knowledge. Likewise, the *Former studies* cluster, the average age (54 years) and years of experience (33 years) of this cluster are high.

Another important point drawn from the cluster analysis is the fact that great chefs (*Former studies* and *Self-taught* clusters) used to have French chefs and their cuisine as references for their education. However, the following generations (*New generation* cluster) have used the great Catalan chefs as references, changing the paradigm and increasing the influence of Catalan cuisine.

It has also been demonstrated that chefs take advantage of the education and training of other chefs to increase their contacts. This is clearly seen in the fact that younger chefs (*New generation* cluster) and chefs without formal cooking education (*Self-taught* cluster) try to share professional experiences with as many other chefs as possible in order to learn more and better.

CONTRIBUTION, IMPLICATIONS AND LIMITATIONS

This study contributes to the literature of restaurants by analyzing the most important aspects of the education in the haute cuisine sector and classifying most Michelin star chefs in a territory according to variables such as age, experience and training. This research has enabled the identification of three group of chefs with a different training pattern.

Regarding the practical implications for the restaurant industry, this study highlights the importance of the current cooking programs and the professional experience as catalysts for knowledge transfer between mentors and also between peers. Therefore, chefs and cooking students should focus on increasing their theoretical and practical knowledge through formal education but without neglecting their nonformal and informal education. In addition, governments and industry bodies should promote all types of education and support training programs to attract young people and also raise more women to positions of responsibility in haute cuisine, a benchmark sector in the restaurant industry.

One of the challenges that the sector must face is the post-pandemic reality. Many professionals have had to adapt their establishments and reinvent their business in order to survive in the new conditions. The reduction of activity in the tourism sector together with the measures that restaurants should take to avoid contagion, mean that professionals in the sector must seek new ways to attract customers, i.e. diversifying the business or adjusting prices even more. Future research lines could address whether education and training play a role in the survival and reinvention of restaurants during the pandemic and the impact of it on the sector, for example, whether the clusters would be different if the data were collected in this situation and which cluster the pandemic will affect the most.

In terms of limitations, the sample is based on chefs from one geographical location, Catalonia, with its specific characteristics. Also, it focuses in only one segment of the industry, the haute cuisine sector. This means that the results cannot be generalized or extrapolated. For this reason, future research should also analyze different samples, new locations and other characteristics not discussed in this study.

DISCLOSURE STATEMENT

No financial interest or benefit has arisen from the direct application of this research.

REFERENCES

Agarwal, R., & Dahm, M.J. (2015). Success Factors in Independent Ethnic Restaurants. *Journal of Foodservice Business Research*, 18 (1), 20-33. doi: <https://doi.org/10.1080/15378020.2015.995749>

Allen, H., & Mac Con Iomaire, M. (2017). Secrets of a Head Chef: Exploring Factors Influencing Success in Irish Kitchens. *Journal of Culinary Science & Technology*, 15 (3), 187-222. doi: <https://doi.org/10.1080/15428052.2016.1225538>

Bernardo, M., Escalante, R., & Arbussà, A. (2018). Analysis of the Catalan Haute Cuisine Success: The Role of Education and Network Creation. *Journal of Evolutionary Studies in Business*, 3 (1), 84-111. doi: <https://doi.org/10.1344/jesb2018.1.j038>

Bernardo, M., Escalante, R., & Arbussà, A. (2019). *El éxito internacional de la cocina catalana. Más allá de la creatividad y la innovación*. Barcelona: Edicions de la Universitat de Barcelona.

Blossfeld, H.-P., & von Maurice, J. (2011). Education as a lifelong process. In H.-P. Blossfeld, & H.-G. Rossbach (Eds.), *Zeitschrift Für Erziehungswissenschaften: Sonderheft 14* (pp. 19-34). Wiesbaden, Germany: VS Verlag für Sozialwissenschaften

Camillo, A. A., Connolly, D.J., & Kim, W.G. (2008). Success and failure in Northern California: Critical success factors for independent restaurants. *Cornell Hospitality Quarterly*, 49 (4), 364-380. doi: <https://doi.org/10.1177/1938965508317712>

Cedefop (2014). *Terminology of European education and training policy: a selection of 130 terms*. Luxembourg: Publications Office.

Cooper, A. C., Gimeno-Gascon, F., & Woo, C. Y. (1994). Initial human and financial capital as predictors of new venture performance. *Journal of Business Venturing*, 9 (5), 371–395. doi: [https://doi.org/10.1016/0883-9026\(94\)90013-2](https://doi.org/10.1016/0883-9026(94)90013-2)

Cooper, J., Giousmpasoglou, C., & Marinakou, E. (2017). Occupational identity and culture: the case of Michelin-starred chefs. *International Journal of Contemporary Hospitality Management*, 29 (5), 1362 – 1379. doi: <https://doi.org/10.1108/IJCHM-02-2016-0071>

Chathoth, P. K., & Olsen, M. D. (2007). The effect of environment risk, corporate strategy, and capital structure on firm performance: An empirical investigation of

restaurant firms. *International Journal of Hospitality Management*, 26(3), 502-516. doi: <https://doi.org/10.1016/j.ijhm.2006.03.007>

Chugh R. (2015). Do Australian universities encourage tacit knowledge transfer?. In *Proceedings of the 7th International Joint Conference on Knowledge Discovery, Knowledge Engineering and Knowledge Management* (pp. 128-135). ISBN 978-989-758-158-8, doi: <https://doi.org/10.5220/0005585901280135>

Coombs, P.H. (1968). *The World Educational Crisis: A Systems Analysis*. Oxford, UK: Oxford University Press.

Coombs, P.H. (1985). *La crisis mundial en la educación*. Madrid: Santillana

Crick, R.D., Broadfoot, P., & Claxton, G. (2004). Developing an Effective Lifelong Learning Inventory: the ELLI Project. *Assessment in Education: Principles, Policy & Practice*, 11(2), 247-272. doi: <https://doi.org/10.1080/0969594042000304582>

Davidsson, P., & Honig, B. (2003). The role of social and human capital among nascent entrepreneurs. *Journal of Business Venturing*, 18(3), 301- 331. doi: [https://doi.org/10.1016/S0883-9026\(02\)00097-6](https://doi.org/10.1016/S0883-9026(02)00097-6)

Denzin, N.K. & Lincoln, Y.S. (2011). Introduction: the discipline and practice of qualitative research. In N.K. Denzin, & Y.S. Lincoln (Eds.), *The Sage Handbook of Qualitative Research* (5th ed. pp. 1-19). London: Sage

DiPietro, R. B., Parsa, H. G., & Gregory, A. (2011). Restaurant QSC inspections and financial performance: An empirical investigation. *International Journal of Contemporary Hospitality Management*, 23(7), 982–999. doi: <https://doi.org/10.1108/09596111111167560>

Eraut, M. (2000). Non-formal learning and tacit knowledge in professional work. *British Journal of Educational Psychology*, 70 (1), 113-136. doi: <https://doi.org/10.1348/000709900158001>

Eshach, H. (2007). Bridging in-school and out of school learning: Formal, non-formal, and informal education. *Journal of Science Education and Technology*, 16 (2), 171-190. doi: <https://doi.org/10.1007/s10956-006-9027-1>

Ganotakis, P. (2012). Founders' human capital and the performance of UK new technology based firms. *Small Business Economics*, 39(2), 495–515. doi: <https://doi.org/10.1007/s11187-010-9309-0>

Gazzoli, G., Hancer, M., & Park, Y. (2010). The role and effect of job satisfaction and empowerment on customer's perception of service quality: a study in the restaurant industry. *Journal of Hospitality & Tourism Research*, 34(1), 56-77. doi: <https://doi.org/10.1177/1096348009344235>

Glaser, B. G., & Straus, A.L. (1967). *The Discovery of Grounded Theory: Strategies for Qualitative Research*. New York: Aldine de Gruyter.

- Grant, R.M. (1997). The knowledge-based view of the firm: implications for management practice. *Long Range Planning*, 30 (3), 450-454.
- Gray, E. & Farrell, K.G. (2021). Perceptions of culinary education and chef apprenticeships in Ireland. *Higher Education, Skills and Work-based Learning*, 11(1), 228-240. doi: <https://doi.org/10.1108/HESWBL-06-2019-0083>
- Gupta, S., McLaughlin, E., & Gomez, M. (2007). Guest satisfaction and restaurant performance. *Cornell Hotel and Restaurant Administration Quarterly*, 48(3), 284-298. doi: <https://doi.org/10.1177/0010880407301735>
- Hall, J., & Sapsed, J. (2005). Influences of knowledge sharing and hoarding in project-based firms. In P. Love, Z. Irani, & P. Fong (Eds.), *Management of Knowledge in Project Environments* (pp. 57 – 79). Oxford, UK: Butterworth-Heinemann.
- Ham, S., & Lee, S. (2011). US restaurant companies' green marketing via company websites: Impact on financial performance. *Tourism Economics*, 17(5), 1055-1069. doi: <https://doi.org/10.5367/te.2011.0066>
- Haswell, S., & Holmes, S. (1989). Estimating the small business failure rate: A reappraisal. *Journal of Small Business Management*, 27 (3), 68-74.
- Herdendam, A.P.F., Nilsen, A.N., & Öström, Å. (2020). Breaking the silence: A pilot study investigating communication skills of sommeliers and chefs after analogical training. *International Journal of Gastronomy and Food Science*, 20. doi: <https://doi.org/10.1016/j.ijgfs.2020.100210>
- Hitt, M. A., Biermant, L., Shimizu, K., & Kochhar, R. (2001). Direct and moderating effects of human capital on strategy and performance in professional service firms: A resource-based perspective. *Academy of Management Journal*, 44(1), 13–28. doi: <https://doi.org/10.5465/3069334>
- INE. (2019). *Directorio Central de Empresas (DIRCE)*. Madrid, Spain: Instituto Nacional de Estadística.
- Jennings, G.R. (2005). Interviewing: A focus on qualitative techniques. In B.W. Ritchie, P.M. Burns, & C.A. Palmer (Eds.), *Tourism Research Methods: Integrating Theory with Practice* (pp. 99-117). Wallingford, UK: CABI Publishing.
- Johnson, C., B. Surlmont, P. Nicod, & F. Revaz. (2005). Behind the stars: a concise typology of Michelin restaurants in Europe. *Cornell Hotel and Restaurant Administration Quarterly*, 46 (2), 170–187.
- Jogaratnam, G. (2017). Human capital, organizational orientations and performance: Evidence from the restaurant industry. *International Journal of Hospitality & Tourism Administration*, 19 (4), 416-439. doi: <https://doi.org/10.1080/15256480.2017.1348920>
- Kim, M., & Kim, Y. (2014). Corporate social responsibility and shareholder value of restaurant firms. *International Journal of Hospitality Management*, 40, 120-129. doi: <https://doi.org/10.1016/j.ijhm.2014.03.006>

Kraaijenbrink, J. (2011). Human capital in the resource-based view. In J. C. Spender, & A. Burton Jones (Eds.), *The Oxford handbook of human capital* (pp. 218–237). Oxford, UK: Oxford University Press.

La Belle, T.J. (1982). Formal, nonformal and informal education: A holistic perspective on lifelong learning. *International Review of Education*, 28 (2), 159-175. doi: <https://doi.org/10.1007/BF00598444>

Lam, A. (2000). Tacit knowledge, organizational learning and societal institutions: An integrated framework. *Organization Studies*, 21 (3), 487-513. doi: <https://doi.org/10.1177/0170840600213001>

Lee, D. R. (1987). Why some succeed where others fail. *Cornell Hotel and Restaurant Administration Quarterly*, 28 (32), 33-37. doi: <https://doi.org/10.1177/001088048702800313>

Lee, C., & Hallak, R. (2018). Investigating the moderating role of education on structural model of restaurant performance using multi-group PLS-SEM analysis. *Journal of Business Research*, 88, 298-305. doi: <https://doi.org/10.1016/j.jbusres.2017.12.004>

Lee, C., Hallak, R., & Sardeshmukh, S.R. (2016). Drivers of success in independent restaurants: A study of the Australian restaurant sector. *Journal of Hospitality and Tourism Management*, 29, 99-111. doi: <https://doi.org/10.1016/j.jhtm.2016.06.003>

Lee, S., Singal, M., & Kang, K. H. (2013). The corporate social responsibility - Financial performance link in the U.S. restaurant industry: Do economic conditions matter? *International Journal of Hospitality Management*, 32, 2-10. doi: <https://doi.org/10.1016/j.ijhm.2012.03.007>

Lofland, J., & Lofland, L.H. (1995). *Analysing Social Settings: A Guide to Qualitative Observation and Analysis*. London: Wadsworth

Madeira, A., Palrão, T., & Mendes, A.S. (2021). The impact of pandemic crisis on the restaurant business. *Sustainability*, 13 (1), 40. doi: <https://doi.org/10.3390/su13010040>

Michelin (2021). *La guía MICHELIN España and Portugal*. Madrid: Michelin.

Morse, J. M. (1994). Emerging from the data: the cognitive process of analysis in qualitative enquiry. In J.M. Morse (Ed.), *Critical Issues in Qualitative Research Methods* (pp. 23-43). Thousand Oaks, CA: SAGE

Nafukho, F. M., Hairston, N., & Brooks, K. (2004). Human capital theory: Implications for human resource development. *Human Resource Development International*, 7(4), 545-551. doi: <https://doi.org/10.1080/1367886042000299843>

National Restaurant Association. (2019). *2019 Restaurant Industry Factbook*. https://restaurant.org/Downloads/PDFs/Research/SOI/restaurant_industry_fact_sheet_2019.pdf. (Accessed 1 March 2020).

- Nonaka, I., & Takeuchi, H. (1995). *The knowledge creating company: how Japanese companies create the dynamics of innovation*. New York: Oxford University Press
- Ottenbacher, M., & Harrington, R. J. (2007). The innovation development process of Michelin-starred chefs. *International Journal of Contemporary Hospitality Management*, 19 (6), 444-460. doi: <https://doi.org/10.1108/09596110710775110>
- Pang, L. (2017). The training and creativity of professional chefs: Stoking the imagination in global gastronomic discourse. *Appetite*, 119, 48-53.
- Parsa, H.G., Self, J., Njite, D., & King, T. (2005). Why restaurants fail. *Cornell Hotel and Restaurant Administration Quarterly*, 46 (3), 304- 322. doi: <https://doi.org/10.1177/0010880405275598>
- Parsa, H.G., Self, J., Sydnor-Busso, S., & Yoon, H.J. (2011). Why restaurants fail? Part II: The Impact of Affiliation, Location, and Size on Restaurant Failures. *Journal of Foodservice Business Research*, 14 (4), 360- 379. doi: <https://doi.org/10.1080/15378020.2011.625824>
- Patton, M. Q. (2002). *Qualitative Research & Evaluation Methods*. Thousand Oaks, CA: SAGE.
- Polanyi, M. (1966). *The Tacit Dimension*. London: Routledge & Kegan Paul
- Rutten W., Blaas-Franken, J., & Martin, H. (2016). The impact of (low) trust on knowledge sharing. *Journal of Knowledge Management*, 20 (2), 199-214. doi: <https://doi.org/10.1108/JKM-10-2015-0391>
- Ryan, G., Pàmies, M.M., & Valverde, M. (2015). WWW=wait, wait, wait: emotional reactions to waiting on the internet. *Journal of Electronic Commerce Research*, 16 (4), 261-275.
- Roy, H., Hall, C. M., & W. Ballantine, P. (2017). Trust in local food networks: The role of trust among tourism stakeholders and their impacts in purchasing decisions. *Journal of Destination Marketing and Management*, 6(4), 309–317. <https://doi.org/10.1016/j.jdmm.2017.07.002>
- Satolo, E. G., Calarge, F.A., & Cauchick Miguel, P.A. (2013). Experience with an integrated management system in a sugar and ethanol manufacturing unit: Possibilities and limitations. *Management of Environmental Quality: An International Journal*, 24 (6), 710-725.
- Saunders, M., Lewis, P., & Thornhill, A. (2003). Deciding on the research approach and choosing a research strategy. In M. Saunders, A. Thornhill & P. Lewis (Eds.), *Research Methods for Business Students*. London: Prentice Hall Financial.
- Sharlit, I. (1990). Six early warning signs of business failure. *Executive Psychology*. 26-30.

Sirvent, M. T., Toubes, A., Santos, H., Llosa, S., & Lomagno C. (2006). Revisión del concepto de Educación No Formal. *Cuadernos de Cátedra de Educación No Formal - OPFYL*. 1-21.

Slavich, B. & Castellucci, F. (2016). Wishing Upon a Star: How apprentice-master similarity, status and career stage affect critics' evaluations of former apprentices in the haute cuisine industry. *Organization Studies*, 37 (6), 823-843.

Smith, J. & Spurling, A. (1999). *Lifelong learning: riding the tiger*. London: Cassell.

Stierand, M., Dörfler, V., & MacBryde, J. (2014). Creativity and Innovation in Haute Cuisine: Towards a Systemic Model. *Creativity and Innovation Management*, 23 (1), 15-28. doi: <https://doi.org/10.1111/caim.12050>

Steno, A.M. & Friche, N. (2015). Celebrity chefs and masculinities among male cookery trainees in vocational education. *Journal of Vocational Education and Training*, 67(1), 47-61.

Suhairom, N., Musta'amal, A. H., Amin, N. F. M., Kamin, Y., & Wahid, N. H. A. (2019). Quality culinary workforce competencies for sustainable career development among culinary professionals. *International Journal of Hospitality Management*, 81, 205-220.

Unger, J.M., Rauch, A., Frese, M., & Rosenbusch, N. (2011). Human capital and entrepreneurial success: A meta-analytical review. *Journal of Business Venturing*, 26 (3), 341 - 358. doi: <https://doi.org/10.1016/j.jbusvent.2009.09.004>

Yin, R. K. (2009). *Case Study Research. Design and Methods*. Thousand Oaks, CA: Sage Publications Inc.

Table 1: Types of education

Type of education	Definition	Examples
Formal education	Regulated, intentional and planned type of education. It occurs in an organized and structured environment, such as universities or education institutions, and it typically leads to certification.	Primary, secondary, higher and university education
Nonformal education	Intentional education embedded in planned activities not explicitly designated as learning (in terms of objectives, time or support). It takes place outside the structure of the education and training system but its outcomes may be validated and lead to certification.	Specific courses, workshops and seminars
Informal education	Unintentional education resulting from daily activities related to work, family or leisure. It is not organized or structured in terms of objectives, time or resources and no certification proving the knowledge acquired is obtained.	Mentoring in the workplace, socialization learning, trial and error and casual conversations

Source: Own elaboration based on La Belle (1982), Eraut (2000), Eshach (2007) and Cedefop (2014).

Table 2: Sample

Periods of time	1. First period: July 2013 - December 2014 2. Second period: February - April 2017		
Interviewees	5 chefs of restaurants with 2 and 3 Michelin stars 51 chefs of restaurants with 1 Michelin star 3 chefs with no star in 2013 but whose restaurants had Director of the Alicia Foundation		
Interviewees information	Type	Number	%
<i>Gender</i>	Male	57	95%
	Female	3	5%
<i>Age groups</i>	20-30 years	3	5%
	31-40 years	24	40%
	41-50 years	18	30%
	>51 years	15	25%
<i>Years of experience groups</i>	10-20 years	21	35%
	21-30 years	24	40%
	31-40 years	9	15%
	>40 years	6	10%
Restaurants information	Type	Number	%
<i>Number of Michelin stars</i>	3 Michelin stars	2	3%
	2 Michelin stars	3	5%
	1 Michelin star	51	85%
	No stars	4	7%
<i>Type of restaurant</i>	Family restaurant	21	35%
	Non family restaurant	35	58%
	N/A	4	7%
<i>Property</i>	Owner	46	77%
	No owner	10	17%
	N/A	4	7%

Source: Own elaboration

Table 3: Aspects analyzed

Aspect	Name in the questionnaire	Description
<i>Formal education</i>	Training courses of more than six months	Regulated training courses, such as studies in hospitality schools or universities.
<i>Additional education</i>	Training courses of less than six months	Shorter courses that help to improve a technique and / or to specialize, with a duration that can be several days.
<i>Internships</i>	Stays or apprenticeship in other restaurants	Training periods in other restaurants to learn working methods, techniques or to increase experience. Currently they are part of the study plans and are mandatory.
<i>Work experience</i>	Professional experience	Restaurants where the participants have worked, with an employment contract.
<i>Conferences and professional meetings</i>	Congresses and fairs	Congresses, fairs or meetings of the sector in which they participate either as attendees or as speakers.
<i>Other ways of training</i>	Other ways of education and training	Reading gastronomic magazines, consulting blogs or travelling to discover new products.

Source: Own elaboration based on Bernardo et al. (2018).

Table 4: Types of education and knowledge

Aspect	Type of education	Type of knowledge acquired	% of chefs
Work experience	Informal	Tacit	100%
Conferences and professional meetings	Nonformal	Explicit and tacit	90%
Other ways of training	Informal	Explicit and tacit	86%
Formal education	Formal	Explicit and tacit	72%
Internships	Formal and Nonformal	Explicit and tacit	71%
Additional education	Nonformal	Explicit and tacit	43%

Source: Own elaboration based on La Belle (1982) and Eraut (2000)

Table 5: Aspect rating

Percentage of times rated	<i>Work experience</i>	<i>Formal education</i>	<i>Internships</i>	<i>Other ways of training</i>	<i>Conferences and professional meetings</i>	<i>Additional education</i>
% of times rated 1 st	40%	24%	21%	7%	6%	3%
% of times rated 2 nd	9%	44%	19%	6%	16%	6%
% of times rated 3 rd	14%	14%	36%	7%	7%	21%

Source: Own elaboration

Table 6: Formal education

Aspect	Groups	% of chefs
Formal education	Formal cooking education	72%
	Self-taught	23%
	Other formal education	5%

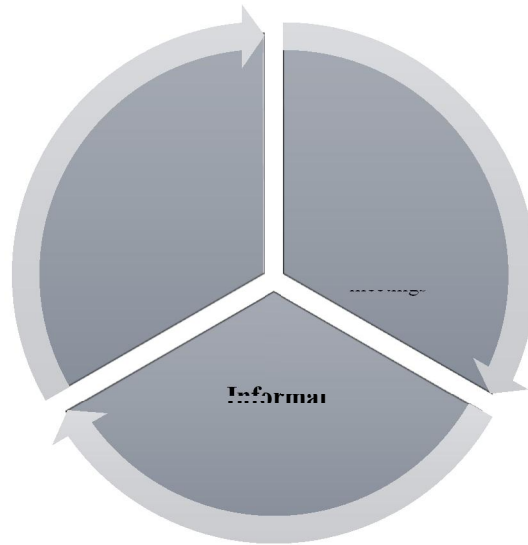
Source: Own elaboration

Table 7: Clusters description

	<i>Former studies cluster</i>	<i>New generation cluster</i>	<i>Self-taught cluster</i>
Total number of chefs	10	33	10
2-3 Michelin stars chefs	3	1	1
1-0 Michelin star chefs	7	32	9
% of chefs of the sample	16.7%	55%	16.7%
% of males	80%	100%	100%
% of females	20%	0%	0%
Average age	52 years	38 years	54 years
Average years of experience	32 years	22 years	33 years
Formal education	Formal studies	Formal studies	No formal cooking studies
Internships	French and national restaurants	Mostly in national restaurants	French and national restaurants
Work experience	Family restaurant	International and national restaurants	Family, international and national restaurants
Conferences + other ways of training	Regularly	Regularly	Regularly

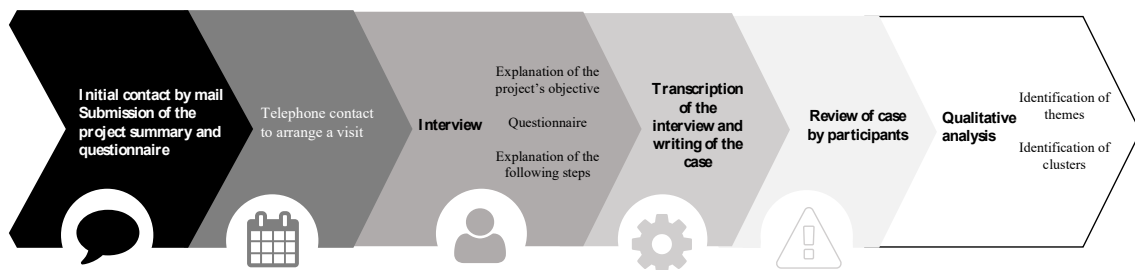
Source: Own elaboration

Figure 1: Education and training of chefs



Source: Own elaboration based on Bernardo et al. (2018).

Figure 2: Protocol of data collection, validation and analysis



Source: adapted from Satolo et al. (2013) and Bernardo et al. (2018).

Figure 3: Clusters

	WORK EXPERIENCE		FORMAL EDUCATION			INTERNSHIPS	
	Family restaurant	Other chefs' restaurant	Formal cooking studies	Self-taught	Other formal studies	Part of formal studies	Increase experience
<i>Former studies cluster</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<i>New generation cluster</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<i>Self-taught cluster</i>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Source: Own elaboration

