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ABSTRACT

Purpose: In view to the skills gap challenge in the chefs' occupation, the purpose of this study was to identify the required chefs' skills and competencies for successful careers in culinary arts management in the UK context.

Design/methodology/approach: A quantitative approach was employed with a survey questionnaire on competencies. Data was collected from different stakeholders with 407 valid responses presenting views on necessary competencies and skills to pursue a career in culinary arts.

Findings: This study suggests that professionals in commercial kitchens should demonstrate strong managerial and leadership skills, as well as operational and administrative. Professionalism and democratic management should be exhibited by chefs, who should develop further their emotional intelligence (EI) competency.

Practical implications: Organizations and academic institutions should provide such training to develop managerial and leadership skills that chefs need. Organizations should recruit based on these competencies model. Attention to diversity, equality and different cultures are important. Academic institutions should redesign their curriculum to address the industry's need on chefs' skills and competencies.

Originality/value: This is the first study to investigate chefs' competencies with empirical evidence from professionals, academics and students in the UK context. This study proposes a model with four sets of competencies, namely management, technical, strategic and operational.

Keywords: Chefs; Competencies; Hospitality industry; Culinary Arts Curriculum.

Paper Type – Research paper

Chefs' Competencies: A Stakeholders' perspective

Introduction

Since the later twentieth century, the profession of chef has been increasingly glamorised, notably through the rise of celebrity chefs, their books and TV programs (Giousmpasoglou *et al.*, 2020). This has attracted many young people into culinary training, but existing research indicates a number of serious challenges in the education of chefs, their skills and competencies development especially those who will occupy executive roles in the hospitality industry (Allen and Mac Con Iomaire, 2017). There is increased emphasis on food sophistication, which creates many challenges for chefs who have to be competent, well-prepared to provide best food and service to guests (Suhairom *et al.*, 2019). People 1st (2017) identified various issues on staff turnover in the chefs' occupation with reference to lack of skills and problems with productivity and chef shortage, creating challenges in terms of human resource management (HRM) but also in terms of operations, as businesses have reportedly scaled down growth plans or others are struggling to operate effectively. The only two reports on the occupation of chefs (People 1st, 2017; KPMG, 2017) refer to the changing nature of chef roles where the need for classical chefs (61%) is highlighted with few full-time chefs remaining in the sector. They also refer to a shrinking labor pool with an impact to recruitment. The main contributing factors to the shortage of chefs in the UK include the increased demand for chefs, the changing nature of chef roles, few students enter and stay in the sector. They also identify a need for curriculum review on culinary arts-related programs in both vocational education and training (VET) and higher education (HE). There is also shortage in chef apprenticeships; practitioners in the UK have acknowledged the need for changes in the training of chefs, such as "increased training offerings including training in hard skills and soft skills" (KPMG, 2017, p.45). For this purpose,

the educators in academic institutions are included in this study, as they are the ones responsible for curriculum design and delivery, as well as students who aspire to be chefs in the future.

The UK's decision to leave the EU presents a further challenge, since the hospitality sector relies heavily on EU workers (People 1st, 2015), and restrictions to EU migration may affect the sector more than any other sector in the UK. KPMG (2017) reports that 25% of chefs working in London are from continental Europe with a deficit of more than a million workers in hospitality by 2029. The recruitment gap will increase with BREXIT "as EU migrant workers cannot be replaced with other workers" (KPMG, 2017, p.5). Moreover, the sector is found unattractive to UK workers as careers in hospitality and culinary arts are not seen as viable, they are considered to be low-paid, with high seasonal variations in demand. More importantly there is "lack of knowledge about career progression and opportunities within the hospitality and food industry" (KPMG, 2017, p. 32), making chefs as the most frequently cited hard-to-fill roles in the same report. On top of that COVID-19 pandemic created another challenge for the sector leading to 1.2 million workers in accommodation and food services in the UK being at risk (McKinsey, 2020) as in March 2020 the government ordered restaurants to close and when reopened many restrictions were imposed (Ottolenghi, 2020).

In view to the above, this study uses the results found in similar studies, i.e. by Zopiatis (2010) in Cyprus and Allen and Mac Con Iomaire (2017) in Ireland to explore any similarities or differences in the competencies required by chefs in the UK context. The authors propose that with the development of appropriate competencies chefs' productivity may increase, and hospitality and food-related organizations may sustain their operations during these challenging times. Zopiatis (2010, p.461) suggested that "there is little interest of academics on research about chefs". Mac Con Iomaire and Allen (2016, p.188) state that "research on chefs is under-represented in the hospitality literature". Theoretical knowledge on creating and building knowledge on chefs' occupation are weak (Roosipold and Loogma, 2014).

Competencies models have been proposed since Katz's (1955) initial study on managerial competencies. He proposed three categories namely technical, human and conceptual competencies; this model was expanded by Sandwith (1993), nevertheless these focused on business rather than hospitality and culinary arts management. Zopiatis (2010) was the first to explore a list of competencies in the culinary arts sector, and Wang *et al.* (2011) proposed additional factors that should be considered including the context. Studies on competencies in culinary arts have used chefs in their sample (Zopiatis, 2010; Allen and Mac Con Iomair, 2017), others have used smaller samples (Birdir and Pearson, 2000), whereas others only Michelin star chefs in France (Balazs, 2002), and in the UK (Cooper, 2012); but there are no studies to combine views on required competencies from the educators' point of view that are the ones providing training at academic institutions, neither from students who aspire to become chefs and who in most cases already work or have experience in the industry. As Schein (1978) proposed people – in his study students - begin their work lives with certain ambitions and hopes which then via work experience uncover initial interests. In view to this, students' have certain beliefs and expectations from their studies, hence their views on required competencies to pursue a chefs' career and remain in the occupation are valuable. Therefore, this study fills a gap in literature by presenting data gathered from those who are actively involved with the chef's occupation from studying to being a professional.

Studies propose that competencies were developed using theoretical frameworks, with little investigation in the effectiveness of such competencies in preparing graduates for employment (Cheng, 2012). However, companies seek for graduates who understand their occupation, and "food science education is to provide students with the skills needed in future chosen career" (Cheng, 2012, p.31), affirming the importance and the link between education and competencies development. Chefs should demonstrate a wide range of skills i.e. cooking,

passion for food, kitchen operations, great personality, but there is very little emphasis on existing literature on who they are, about chefs as an occupation (Suhairom et al., 2019).

Therefore, this study aims to examine the competencies for chefs required to succeed in their profession, that considers the context in which chefs operate, in this case the UK hospitality and food industry. It seeks to identify the gap between the existing competencies, and the curriculum and current/future market needs in terms of chefs' competencies, which may be developed through education and training. It aims to investigate how relevant are established competency models for today's successful chef. The purpose is to propose how future chefs may be trained to make the optimum contribution to hospitality.

The current research furthers our understanding and knowledge on chefs' competencies, which may lead to success, as it surveys not only chefs as all other studies have done, but it also includes educators and students aspiring to be chefs. This knowledge will benefit all relevant stakeholders, such as educators, future culinary arts students and current employers in highlighting the factors that contribute to the success in the profession and the skills, knowledge and competencies that should be developed for this culinary success. Furthermore, companies may use the findings in the selection, recruitment and training of employees, which may also help reduce the high staff turnover in the sector.

Literature review

The competencies movement

Competencies were firstly examined by Katz (1955) who developed a model with three categories, technical, human and conceptual competencies. The model was further expanded by Sandwith (1993), as he split human competencies to interpersonal, leadership and administrative. Boyatzis (1982, pp.20-21) defined a 'job competency' as "an underlying characteristic of a person which results in effective and/or superior performance in a job". A

number of different meanings have been attached to the word "competency" in the workplace, sometimes confusingly (Antonacopoulou & FitzGerald, 1996), but some incorporated in the term peoples' personal traits, knowledge and motives to have a job. There are a number of definitions of competence or competency in the literature pertaining to HRM and occupational and organizational behaviour (Boyatzis, 2015). Recent studies propose that "competencies are conceptualized as measurable patterns of knowledge, skills, abilities, behaviors and other characteristics that differentiate high from average performance" (Suhairom et al., 2019, p. 206). Boyatzis (1998) categorized competencies in threshold and differentiating. Threshold competencies are those clusters of minimum behaviors (skills) that people need to do the job, whereas the differentiating competencies are the distinct characteristics (behaviors, skills etc) that differentiate high performers from those that are average. In any case, Sandwith (1993) argued that organizations should adapt any competency model to their specific organizational needs or, adopt those relevant to the particular business.

Two distinct approaches have been used for defining and studying managerial competencies in the US and the UK respectively (Giousmpasoglou, 2012). On the one hand, Boyatzis (1982) proposed that the *behavioural* approach, which has preoccupied academics in the USA, identified behaviours linked with superior or average performance. On the other hand, the *(occupational) standards approach,* which appeared in the UK in the mid-1980s, focused on analysing the job and identifying the minimum requirements and standards for people to perform relevant tasks (www.ukstandards.org.uk). Thus, the latter approach focuses on the job, rather than upon the individual holding the job (the basis of the behavioural approach). Studies in the UK are dominated by the occupational standards approach, which have contributed to 85% of the workforce training and development.

The criticism on the concept of competency refers to the difficulty of measuring their assessment. Barber (2007) proposed that assessing competencies requires a series of activities

including training. Competencies examine factors within an individual that cannot be observed and be standardised at all times, but the greater the detail the more difficult it is to generalize (Cheng, 2012). Most models treat competence as it can be generalised across situations, which according to Burke (2005) it is rarely the case with vocational related competencies.

Competencies for Chefs

Recent studies on competencies in hospitality management follow the behavioural approach i.e. Giousmpasoglou (2012) who proposed six areas of managerial competencies among hotel managers namely, *intellectual*, *personal*, *communication*, *interpersonal*, *leadership* and *results/performance*; contextual factors such as national and occupational culture are also impacting on competencies. Research on competencies in the context of culinary arts is limited with only six articles (Balazs, 2001; Birdir and Pearson, 2000; Zopiatis, 2010; Gersh, 2016; Mac Con Iomaire and Allen, 2016). The nature of chef's work, with its unique occupational culture and identity (Cooper *et al.*, 2017) to a certain degree requires a set of competencies distinct from those of other employees in the hospitality industry. The lack of management skills among trainee chefs has long been regarded by academics as a key challenge within the hospitality industry (Pratten and O'Leary, 2007; Cooper, 2012). A definition of chef's competence has been provided by Birdir and Pearson (2000) who state that chef's competence is the skill, ability, knowledge and other attributes that encourage a successful chef. Pratten and O'Leary (2007) support that mastering cooking does not guarantee success in the chef's occupation.

A recent study by Gersh (2016) used existing networks of professionals in North America and Europe. Culinary arts practitioners were approached through the James Beard Foundation and hospitality educators through I-CHRIE. This gave them a sample of 271 participants, in a web-based survey replicating a previous study by Tas (1988 in Gersh, 2016) on the

competencies of hotel management trainees. Practitioners and educators alike considered competencies pertaining to interpersonal skills to be the most important for bachelor's students in the culinary arts, but both survey groups considered conceptual skills to be the least important. There was no significant variance between educators and practitioners, indicating a shared view of the competencies required by culinary arts graduates. This study did not include the opinion of students who aspire for a career in culinary arts.

Mac Con Iomaire and Allen (2016) studied 170 chefs in the Irish industry. They proposed a group of success factors including professionalism, leadership skills, and interaction with the job context. They claim that their factors for success in the culinary industry are broader in scope than Zopiatis (2010), and added education, personal outlooks, and support to fit to the organization. Zopiatis (2010) studied 95 professional chefs in Cyprus, at different stages of their careers (i.e. Junior Sous Chefs, Sous Chefs, Chefs and Executive Chefs). He used an instrument reflecting Sandwith's (1993) competency domain model, which measured a total of 27 competencies, distributed among seven competency categories or domains. These were *technical* (culinary-specific), *conceptual* (creative-adaptive), *interpersonal*, *administrative* (budget and strategic planning; professional administrative strengths) and *leadership-management* (leadership strengths; management skills). Zopiatis (2010) suggested that the most important competencies among the chefs in his study were technical skills with less importance placed to leadership and management. Similarly, little value was placed to conceptual (creative-adaptive) competencies. The top five highest rated competencies from all participants were professionalism, knowledge of culinary flavours, managerial skills (delegating and organising), decision-making skills and an appreciation of cost management. The lowest rated competencies were the ability to change, emotional control and stability, ability to innovate, knowledge of strategic planning and computer skills. Another noteworthy finding of this study was a low importance score given to artistic culinary creativity and

budgeting, both considered crucial competencies for a chef. Birdir and Pearson (2000) explored managerial aspects of chefs' work in the US, encompassing two management-focused categories of chef involved respectively in product development and promotion/sales. According to their findings (summarised in Table 1), knowledge of flavours, knowledge of food sanitation, ability to distinguish level of quality in food products, general communication skills, planning, organising and an ability to make decisions were identified by participants from both specialisations as the most important competencies. All three studies used professional chefs in their sample providing their views on the competencies required for success without considering the views of other stakeholders. They also used different context in their study i.e. Ireland, Cyprus and US that have different industry characteristics from the UK. As discussed in the introduction the UK hospitality and culinary arts sector face many challenges with the most distinct the lack of skilled workforce.

Table 1: Competencies for chefs – a comparison of existing literature

*Insert **Table 1** here*

Competencies as discussed above could be separated in different groups. *Technical skills* are important for chefs to perform their job well. These include mainly the minimum skills that one has to acquire in order to prepare for their occupation such as food hygiene and safety (Mac Con Iomaire and Allen, 2016) such as knowledge of culinary flavors, recipe and menu development among others as proposed by Zopiatis (2010). These skills should be constantly improved with upgraded knowledge (Suhairom *et al.*, 2019), however they are skills that may "be acquired through education and training or through on the job work experience" (Mac Con Iomaire and Allen, 2016, p.195). *Non-technical competencies* include personality, attitudes, communication skills, problem solving, organizational management and decision-making (Suhairom *et al.*, 2019). Mac Con Iomaire and Allen (2016) added cognitive skills including

mental abilities and critical thinking. These are linked with the education one has, people with college education have less risk of unemployment, and in the food industry this has been identified as a trend (Allen and Mac Con Iomaire, 2016). They added creativity, business skills, managerial skills and motivational skills, environmental and demographic factors. There are opposing views on creativity as an important competency; Robinson *et al.* (2014) put creativity on the top of the list, whereas Zopiatis (2010) at the bottom of the list as the least important. However, Mahfud *et al.* (2019) support that creativity is important as it ensures food tourism sustainability. They also propose that innovation and the development of new ideas are important skills that usually reflect the development of new dishes based on the market's needs.

There is a shift from operational and technical skills to corporate and strategic skills, as well as managerial skills (Suhairom *et al.*, 2019). Generic managerial skills are also proposed. Chefs should demonstrate *business sense* as many of them are entrepreneurs (Birdir and Pearson, 2000; Allen and Mac Con Iomaire, 2017), cost control and budgeting (Zopiatis, 2010; Suhairom *et al.*, 2019). Chefs should have strong practical skills i.e. conform to regulations and "soft" people management skills such as leadership (Zopiatis and Constanti, 2007). The lack of *soft skills* such as oral communication, problem-solving, and interpersonal skills, affects the company's performance (Nikadimovs and Ivanchenko, 2020). Communication (verbal and non-verbal) skills are important to convey ideas and information. Such skills are important and necessary in culinary, as they equip people with the competencies to develop good working relationships with customers and employees. Successful chefs should be able to build good team relationships and show understanding between team members (Suhairom *et al.*, 2019). Consistency on leadership is needed in the kitchen as it is positively related to subordinate perceptions of leader competence, as well as to the treatment of employees and the articulation of organizational goals and policies (Nguyen *et al.*, 2020). Soft skills help people solve problems, make decisions, communicated, become a leader, manage time and stress

(Nikadimovs and Ivanchenko, 2020, p.44). *Motivational skills* are reported by many scholars (Zopiatis, 2010; Allen and Mac Con Iomaire, 2017; Suhairom *et al.*, 2019). The working conditions in kitchens are characterized by long working hours, high stress levels, low compensations (Cooper *et al.*, 2017; Allen and Mac Con Iomaire, 2017). A chef should motivate his/her team for better work performance and to motivate themselves (Zopiatis and Constanti, 2007); be passionate about the job (Wang *et al.*, 2011). At the same time, they should have the physical state to cope with the agitated physical activity of cooking (Suhairom *et al.*, 2019).

Environmental factors are also considered important and relevant to chef competencies. A good person-job fit is important, as well as the salary, promotion opportunities and work atmosphere are part of the factors that influence culinary success (Allen and Mac Con Iomaire, 2017). Finally, studies propose that *demographic factors* such as gender and age are related to competencies. The social role theory suggests that there are gender differences in expectations and responses, and men and women respond differently to leadership. Some studies propose that significant relationship between gender and age and salary or gender and career success as well as perception of leadership (Allen and Mac Con Iomaire, 2017), whereas others oppose this view (Zopiatis, 2010).

The industry expects graduates to demonstrate both hard and soft competencies (Nguyen *et al.*, 2020; Allen and Mac Con Iomaire, 2017), thus, it can be argued that the creation and retention of a workforce equipped with a suitable set of competencies seems to offer the most effective way to meet the hospitality and culinary industry's future needs. It is evident from the above that there is a range of competencies contributing to success, including both hard skills and soft skills related to working with, and managing teams; therefore, a broader research should be carried out to identify those factors that contribute to the success of chefs in the UK. The literature review showed that competencies vary depending on the context in which they

are used; the organizational context, the organizational goals and objectives should be considered to develop competencies and consider future job requirements. The more detailed the competency model the less possible application can be generalized, therefore this research described fills a significant gap in research related to chefs' skills by exploring current competency needs and investigating the curriculum changes required for providing future generations with these competencies in the UK context.

Education and training of chefs in the UK

Chefs are critical to the support and success of the hospitality and tourism industry. Currently the hospitality and tourism industry is facing a rapidly changing environment, which requires people including chefs to be professionally trained (Zopiatis, 2010; Ko, 2012; KPMG, 2017; Suhairom *et al.*, 2019). Ko (2012, p.1006) claims that "successful professional competence development dictates that chefs remain in the industry over the long term" and that chefs should maintain high culinary quality and continuously upgrade their skills. However, training costs for organizations can be staggering (Kalargyrou and Woods, 2011) creating the need for chefs to acquire proper and adequate education prior to joining their work. All culinary arts programs in the UK include experiential learning and most of them require substantial industrial placement experience. However, many criticize the role of education and question whether these programs adequately prepare graduates. The provision of catering courses "don't prepare young chefs with the range of skills to thrive in the workplace" (Bosetti and Washington-Ihieme, 2019). Lugosi and Jameson (2017) among others propose that hospitality management education, which integrates culinary arts management studies, should not be defined or reduced to serving the industry and that students should develop reflective cognitive and soft skills as well.

Nikadimovs and Ivanchenko (2020) state that culinary arts students do not have realistic expectations of their preparedness for work; Employers have on the other hand very high expectations especially on critical thinking and creativity. Gersh (2016) proposes that educators' views are important in competency development and they ensure that competencies are effectively integrated in culinary arts degree programs. Hence, this study presents the views from practitioners, educators, students and others involved with culinary arts such as professional bodies and aims to provide some insights on whether competencies currently developed or should be developed are covered in academia.

Methodology

Research tool

The purpose of this study was to investigate the competencies required by chefs in the UK context to succeed in their profession. This study used a survey questionnaire designed to elicit both quantitative and some qualitative data. The closed questions replicated a survey conducted in Cyprus discussed above (Zopiatis, 2010). The researcher was contacted and kindly provided details of his fieldwork, data and analysis. His questionnaire assessed 27 competencies divided into three domains (A1-A3) and seven categories (C1-C7), as shown in Figure 1, with a five-point Likert scale (1 for Not Important to 5 for Extremely Important). The same questionnaire was used by Allen and Mac Con Iomaire (2017) with variations, as additional factors such as personality factors and environmental factors and more demographics were added to include further measures. Zopiatis' work was found to be appropriate as it was based on the key competencies model developed by Sandwith (1993) as well as propositions by a focus group. The questionnaire for this study was divided into three sections, the first gathered demographic and background information on the participants, the second measured the perceived importance of occupational competencies on a five-point Likert scale (1 for *not important* to 5 for *extremely*

important). The third section contained an open-ended question and space for participants to make additional comments, for instance on the nature of "a good chef" or to identify any competencies that might have been overlooked among the scaled items. A pilot study of students (n=4) and educators (n=6) was conducted at the University of West London (UWL), as a result of which three more competency items were added to the framework namely A5. Food preparation skills, A6. Food safety and A7. Sustainability and waste management.

Figure 1: Chefs competencies used in survey questionnaire

*Insert **Figure 1** here*

The key challenge for this survey was access, since three disparate stakeholder groups were involved: professionals, educators and students. Challenges in hospitality and culinary arts education include the changing nature of students (with a growing number of international students), the weakening student engagement and their lack of interest to participate at sessions (Lugosi and Jameson, 2017), making this group an important participant for this study in order to explore what these students expect from their studies and the competencies they find important to remain in the industry and pursue a career. Educators rely on input from industry to ensure the competencies required are embedded in the curriculum (Gersh, 2016) and they are the ones designing and delivering the curriculum, therefore they are responsible for developing and measuring students' skills. Finally, practitioners were professional chefs themselves, working in the industry and in some cases, they were restaurant owners, therefore they also represent the employers' point of view.

An online and a paper-based version of the survey questionnaire were developed after the pilot study, to maximise participation. Online surveys offered access to a large sample, with limitations of possible sampling bias and relative loss of researcher control (Hewson *et al.*, 2016) which were dealt with as follows. A multi-level sampling strategy was devised to maximise the number of responses. Participants in all cases were assured of confidentiality and

informed that their participation was voluntary. The researchers established initial contact with academics involved with well-established and reputable culinary arts management HE institutions: The London Geller College of Hospitality and Tourism (LGCHT) and University College Birmingham (UCB), by telephone. Many provided their emails, to which the link to the online questionnaire was sent with instructions to be distributed to students and other academic staff members or professional contacts in the industry. For these individuals, a soft copy of the survey was made available online as a Google doc questionnaire. The same link was made available to participants via LinkedIn, Facebook and Twitter. Most of the student responses (97%) and those of the culinary arts educators (87%) came from the two HE institutions. Moreover, the researchers used their own network with a purposive sampling of participants from all three groups at industry expos and trade shows such as Hotelympia, the Independent Hotel Show, and Confex. In addition, the *Craft Guilt of Chefs,* the *Royal Academy of Culinary Arts*, the *Chefs' Forum* and *People 1st*, distributed it to their members in order to maximise access to practitioners across the country. Finally, a networking event was held to promote the research at the *Chefs' Forum* in central London. At this event, professionals (including employers), educators and students completed the paper-based questionnaire. In total 70 responses were acquired by educators, 125 by students and 185 from professional chefs. There were 27 responses from other sources such as associations, however they were included in the professionals list as they were mainly representatives of chefs in relevant bodies. Although different sources were used to identify and approach the sample, there were no issues with the interpretation of the results as the various groups were coherent and demonstrated consistencies in their profiles.

Data analysis

SPSS 24.0 was used to process quantitative data from the survey questionnaires. Descriptive statistics were calculated to test the reliability of the data and to answer the research questions. Exploratory Factor Analysis (EFA) was used to determine factors that best explained the competencies model within the data set. The data were screened for univariate outliers, but none were identified. Kaiser-Meyer-Olkin (KMO) was .958 and hence the sample was considered adequate, and the data suitable for factor analysis (Hair *et al.*, 2010). Significance was set at $\alpha = 0.05$ and each of the competency statements was grouped into a factor. Varimax rotations were used to validate the factor analysis. Cronbach's Alpha test for reliability was performed and were borderline however acceptable as per Lance *et al.* (2006) with Management/Leadership 0.63, Technical 0.62, Strategic 0.66 and Operational 0.65. One-way ANOVA tests with a Post Hoc Multiple Comparison Test (Tukey HSD) were conducted to identify differences among the three groups of participants in terms of their perceptions of the competences, and to identify possible effects of age, experience, employer type or educational background, as suggested by Zopiatis (2010) and Allen and Mac Con Iomaire (2017). Correlations to assess the relationship between the factors in each set were conducted using Pearson's correlation coefficient.

Qualitative data from the open-ended question (Please spend a couple of more minutes to tell us what will be the successful ingredients of the future Chefs) were used to identify any other relevant competencies and/or skills. 273 participants responded to this section. Directed content analysis and thematic coding was used to develop concepts and themes from the qualitative data. Directed content analysis follows a systematic way to analyze data in order to be easily replicated by other researchers. This method has some level of subjectivity, which can affect validity and reliability, nevertheless, we used a thorough and systematic process of data analysis and coding to confirm the trustworthiness of the findings (Graneheim and Lundman, 2004). The authors coded the data independently to enhance reliability and discussed

their individual findings in order to finalise the themes (Miles and Huberman, 1994), they were both trained to coding in a similar way providing accuracy in the results (Braun and Clarke, 2006). Quality was maintained as a review of candidate themes was done to encourage reflection, rigor and a systematic and thorough approach (Braun and Clarke, 2006). Open coding (Corbin and Strauss, 2008) was used and key themes were identified initially relevant to competencies as well as future need in the sector in order to contribute to the industry and to tourism development in the UK. It was not difficult to identify themes as the question was rather specific providing similarities across a range of codes that were used. This question was analyzed with clear intention and structure as the main purpose was to illuminate the study in an exhaustive way (Kvale and Brinkman, 2009). Three main themes emerged from the analysis: working conditions and occupational culture, and key success factors, skills and competencies for chefs, all of which were used to confirm or enhance the findings from the quantitative data.

Results and Discussion

In total 450 questionnaires were administered to all three participants groups, from which 407 completed and valid questionnaires were returned. Respondents' demographic profile is exhibited in Table 2.

Table 2: Sample demographics (n=407)

*Insert **Table 2** here*

For the purpose of this study three different groups were used, professionals (Prof -which included all chef related job classifications, who were also in some cases employers), educators (Edu) and culinary arts management students (Stu -which included both students in HE and apprenticeships). Most of the participants were male (60.7%) and only 39.3% were females.

Combined, the majority of the participants had 2-5 years of experience. 6.6% of the respondents were people involved with associations or policy makers.

Professionals' competencies compared

Zopiatis (2010) suggested three categories of competencies (operational, administrative and leadership-management) which he tested among chefs. The first stage of the present research was to analyse the data from the professionals' group, to identify similarities and/or differences with Zopiatis' study. EFA with PCA and Varimax rotation was used as a data reduction technique to summarize the data and to determine the factor structure with groups among the variables (Pallant, 2007). Communalities were all above .3 (Table 3), further confirming that each item shared some common variance with other items. Given these overall indicators, factor analysis was deemed to be suitable with all items. The KMO measure of sampling adequacy was .958, and Bartlett's test of sphericity was significant χ^2 (8097.026) = 841.18, $p < .001$, exceeding the recommended value of 0.7 (De Vaus, 1993) for suitability of scales. PCA was used because the primary purpose was to identify and compute composite scores for the factors underlying the version of the chefs' competencies proposed by Zopiatis. Initial eigenvalues indicated that the first three factors explained 60% of the variance. EFA demonstrated that all items contributed to a simple factor structure. EFA showed that there were 4 main factors with different item loadings, which were named differently by the authors (Table 3).

Table 3: EFA, professionals' competencies only

*Insert **Table 3** here*

Comparison of the data revealed four categories of competencies identified by the professionals in this study explaining a total of 57.56% of the variance of the entire set of

variables. Pallant (2007) proposes that variance extracted should be above 0.5. All variances are presented in table 4 that clearly shows all items have total variance higher than 0.5.

Table 4: Total Variance Explained

*Insert **Table 4** here*

Zopiatis (2010) identified three main categories namely operational, administrative and leadership management. However, this study identified four: *Management/leadership competencies*, *Technical competencies*, *Strategic competencies* and *Operational competencies*. The same was found when EFA was performed on all three groups, as well as on each of the other groups individually. This supported the suggestion that in the UK context four competency categories were relevant. Internal consistency for each of the scales was examined using Cronbach's alpha. The alphas were moderate: .63 for Management / leadership factor (12 items), .62 for Technical (8 items), .66 for Strategic (5 items) and .65 for Operational (5 items). No substantial increases in alpha for any of the scales was found with the elimination of items. Factor 1 was labelled Management/Leadership competencies comprised of 12 items that explained 46.58% of the variance. Factor 2 labelled Technical competencies comprised of 8 items that explained 4.43% of the variance. Factor 3 labelled Strategic competencies comprised of 5 items that explained 3.75% of the variance. Finally, Factor 4 labelled Operational competencies comprised of 5 items that explained 2.79% of the variance. Interestingly, the *Operational competencies* category included verbal communication and writing, computer skills, knowledge of cultures, ethics/responsibility, and EI. Zopiatis (2010) study tended to emphasise professional competencies, claiming that "competencies such as professionalism, ability to motivate others, and verbal and writing skills, [were] perceived as high in terms of importance" (Zopiatis, 2010, p. 465).

Comparison of the means of the three subgroups practitioners, educators and students

A one-way analysis of variance (ANOVA) was conducted to identify any differences among the three groups on the importance of the four groups of competencies. Post hoc multiple comparison tests were used to identify which means differed. The possibility of Type I errors was minimised by using the Tukey Honesty Significant Difference (HSD) test was used. The test revealed differences among group means in specific items in the competencies group. Similarities were identified in the majority of the competencies in the model. Nevertheless, no significant correlations ($p > 0.01$) and hence differences among the three subgroups were found in Management/Leadership competencies on staff appraisal, Strategic competencies on strategic planning and ($p > 0.05$) for Operational competencies on all 5 items.

More specifically, the authors examined the competencies perceived as high in terms of importance among the three different groups namely professionals, educators and students as shown in Table 5.

Table 5: Competencies perceived by importance – all three groups

*Insert **Table 5** here*

It is evident from the above that all three groups perceived Management/leadership competencies as most important, followed by technical competencies. Professionals gave Food safety (M=4.51) the greatest importance and Computer skills (M=3.50) the lowest. Educators perceived Professionalism (M=4.81) and Computer skills (M=3.64) to be the highest and lowest respectively. Finally, students put more value on Food Safety (M=4.24) and Professionalism (M=4.24) and less on Labor cost control (M=3.30). Culinary skills were seen as practical vocational skills that did not include any managerial and human resources related skills. The emergence of culinary arts education in the past 20 years had an impact on the advancement of culinary arts curriculum and the needs in terms of skills and competencies from the industry

(Gersh, 2016). Evidently, human skills and competencies are highly valued by all three subgroups showing a change in the chefs' profession.

Differences among groups on different factors based on demographic criteria

Studies on success factors propose gender differences. In their study Hofmans *et al*. (2008) propose higher job satisfaction among men than women. Similarly, studies propose differences in expectations, values, attitudes among different age groups (Davidson *et al.*, 2011). Gender and age may impact on the perception of success and the competencies required for chefs to succeed. Differences among the perceptions of the professional groups according to age, and years of experience in the industry were investigated using ANOVA and post hoc multiple comparison tests. The possibility of Type I errors was minimised by using the Tukey Honesty Significant Difference (HSD) test. Findings were as follows.

Age

There was significant difference on the competency items among the different age groups. No differences were revealed in terms of importance on *Management/Leadership Competencies* for Time management F(4,180)= 1.411; *p*=.232, Decision-making F(4,180)= 2.292; *p*=.061, Emotional control/stability F(4,180)= 2.058; *p*=.088, Staff appraisal F(4,180)= 2.244; *p*=.066, Handle staff complaints F(4,180)= 1.074; *p*=.371. For *Technical competencies* differences were revealed on Food safety F(4,180)= .466; *p*=.760, Knowledge of food F(4,180)= .795; *p*=.530, Artistic creativity F(4,180)= .532; *p*=.712, Food preparation F(4,180)= 1.234; *p*=.298, Sustainability/waste management F(4,180)= .1150; *p*=.335, Change F(4,180)= 2.017; *p*=.094, For *Strategic competencies* no differences were revealed for Strategic planning F(4,180)= 1.323; *p*=.263, Cost management F(4,180)= 2.302; *p*=.060, Innovate F(4,180)= .562; *p*=.691, Budgeting F(4,180)= 1.438; *p*=.223.Finally, for *Operational competencies,* there were no

differences in all 5 items, showing that age did not make any difference in such general operational competencies required for chefs. Thus, this study showed that in general there were differences among the professionals age groups in terms of the competencies' requirement, the younger they are the less they valued Management/leadership competencies. In contrast, Zopiatis (2010) found no significant differences with age. Principal concerns were *knowledge of flavour*, *recipe and menu development*, *food preparation*, *change*, *adaptation to difficulty*, *budgeting*, *organization skills*, *decision-making*, *managerial skills*, *human skills*, *ability to motivate*, *handle staff complaints*, and *staff appraisal*.

Years of experience

The more experienced individuals placed more value on the competencies. Years of experience were significantly correlated (pearson's rho, $p<0.05$) with most competency items except sustainability/waste management, knowledge of cultures and computer skills. Years of experience were significantly correlated with all four categories ($p\leq.05$). As expected, the years of experience were also correlated significantly with age ($r=0.796$, $p<0.001$). On the contrary, Zopiatis (2010) in his study found no differences in regard to experience.

Type of Business

A one-way ANOVA was conducted to test differences among the different types of businesses where chefs were employed. There were significant differences in all competencies except *Technical competencies,* Food safety $F(4,180)=1.144$; $p=.338$, Sustainability and waste management $F(4,180)=2.236$; $p=.067$, on *Operational competencies* such as Verbal communication and writing $F(4,180)=1.006$; $p=.406$, Knowledge of cultures $F(4,180)=.169$; $p=.954$, Computer skills $F(4,180)=.690$; $p=.599$, EI $F(4,180)=1.519$; $p=.198$. Among these, Management / leadership and Technical competencies were highly valued by those working at

restaurants with fine dining, and at 4* and 5* star hotels, whereas Strategic and Operational competencies were highly valued at 4* and 5* star hotels, but markedly less so among the other categories. This finding confirms Zopiatis (2010) who also found significant differences in terms of employer affiliation. This could be justified by the organization, planning, control and other quality issues that are required in the high-end hotel sector. Those who worked in catering companies also placed high importance on all four categories.

Qualitative data analysis

Some interesting findings emerged from the open-ended question at the end of the survey questionnaire. In this part many respondents raised issues related to occupational culture and working conditions in commercial kitchens.

Working conditions and Occupational Culture

It was not surprising that work characteristics such as the long working hours, passion and creativity repeatedly appeared in comments. Edu18 stated *"all round experience....must know the basics before advanced tasks...be willing to work long, hard hours, have pride in what they do, be committed....Being a chef is a lifestyle not just a job"*. They mentioned stagnation in their wages, which in combination with long working hours and unbalanced life could lead to '*emotional instability'* (Prof22). Many raised the issue of low pay as high achievers make the same or less with mid-level workers in other sectors (i.e. Prof11, Prof32, Prof66). This also leads to many leaving the sector leading to high turnover. Constant stress and hectic atmosphere were identified by many participants. In agreement to other studies (i.e. Zopiatis, 2010) they proposed that chefs should exhibit behaviors that related to personality traits preferable for this occupation. Individuals should be able to alleviate the stress and ensure commitment to the occupation regardless the long hours, the stress and the no tolerance for errors. Social affiliation

in the culinary society was also identified as part of the occupational culture. Individuals should have a sense of worth and share knowledge and experiences with others in the profession (Edu21; Prof55).

Key success factors and competencies

Others focused more on the skills and/or competencies required to be a successful chef, acknowledging the need to balance practical and people skills (hard and soft skills). All three groups valued *Management/leadership* related skills of motivation, communication, organization and time management. Teamwork was an important issue for all groups. An executive chef (Prof4) argued that *"...it is crucial for an Executive Chef to build a reliable team in order to achieve consistency and set the standards in a kitchen. Knowing everyone what has to do takes the stress out from the team. In addition is very important to develop the team members, make them feel they are important on the success of the team and motivate them."* A head chef added (Prof5) *"in my opinion it is crucial for a chef to build a reliable team in order to achieve consistency and set the standards in a kitchen. Knowing everyone what has to do takes the stress out from the team. In addition is very important to develop the team members".* Team building skills and empathy were also identified as key success factors. For example, a lecturer (Edu41) added *"the ability to control and motivate the uninterested kitchen worker in a non-threatening manner or through bullying. Empathy".* Adaptability was also important. For example, a Head of Program (Edu22) stated "*The ability to adapt to the challenges within the ever-changing labor market in the Global Environment*". Students believed that chefs should be able to adapt to changes in the kitchen, but also to difficulties related to the occupation such as customer complaints. Interestingly, professionals and students, but not educators, mentioned emotional control. Prof (81) stated that chefs should be '*mentally strong',* Prof (166) *'not aggressive',* and Prof (53) *'calm under pressure'.* Similarly,

a student (Stu56) said that chefs should *'stay calm'* and *'be approachable'*. Although people management and effective leadership of the kitchen brigade is considered a key priority in commercial kitchens (Balazs, 2001), only students in the study suggested that chefs should demonstrate leadership skills. Some professionals mentioned inspiration, but only five referred to leadership and EI. Managing work performance is an important competence for the culinary profession (Zopiatis, 2010). Organizational management skills linked to performance appraisal were also identified as important in this study. Chefs sometimes operate as entrepreneurs and businesspeople and financial success is linked to career excellence (Suhairom *et al.*, 2019). Participants in this study mentioned the need to demonstrate knowledge in marketing, budgeting etc however they mentioned that in many cases they hire other managers to perform these tasks.

According to an experienced educator (Edu34): *"Chefs of the future need to have a broad range of food prep and cooking skills across all kitchen areas, a strong foundation which they can build on. Equally they also need a rounded knowledge of communication skills, both spoken and written, coatings and budgets and motivational and leadership skills"*. Culinary careers encompass the combination of food knowledge and food preparation skills as well as other culinary-specific competencies (Suhaimon *et al.*, 2019). In terms of *Technical competencies*, the focus of the discussion was knowledge of food. An executive chef (Prof10) stated that chefs should go back to the basics in terms of cooking, more specifically he said "*the return to the classical cooking, well-known and loved flavours, receptors executed with a fresh eye. Less use of molecular technics*". Nevertheless, they all expressed the view that creativity and innovation are important in order to have more customer satisfaction. Chefs should master competencies in culture and acknowledge the uniqueness of different cultural cuisines (Suhairom *et al.*, 2019) in order to be able to offer a range of products that represents international cultures with the emergence of culinary tourism globally (p.214). For example,

another lecturer (Edu38) stated that chefs and future chefs should have the "*ability to adopt to a rapidly changing world where our customers are more discerning than ever. Ability to pass on knowledge train and support chefs of tomorrow*". A very highly regarded skill was the adaptability in rapidly changing working environment, which was subject to many fashions and trends. For example, a female instructor (Edu34) proposed that *"all of the above (competencies) stated qualities and characteristics. Chefs of the future will need to be adaptable, have a broad knowledge of cultural differences and trends within food. Chefs will need to be aware of sustainability and environmental impacts of farming and food production."* Sustainability and waste management was also identified as an important competency in the qualitative data. "*Today's chefs need to be 'up to date'*" (Stu34). Stierand *et al.* (2009) propose that culinary innovation is more about product knowledge, it includes problem solving and decision-making skills as well in order to be aware of the context in which chefs operate and be familiar with the influences on their creations.

Budgeting and innovation were the two most important competencies in the *Strategic competencies* group for the professionals and educators. "*Chefs need to demonstrate knowledge of cost control*" (Prof221). Similarly, Zopiatis (2010) pointed out the importance of budgeting, planning and costing for chefs. Innovation was very often linked to knowledge of food and creativity therefore it was discussed in food related issues. The development of new ideas, new recipes and cooking styles were mentioned by all three groups. These have been identified as important chefs' competencies by Zopiatis (2010), Allen and Mac Con Iomaire (2017) and Suhairom *et al.* (2019).

Operational competencies included ethics and responsibility as well as knowledge of cultures. A strong professional work ethic as part of this occupational group's identity, was also reflected in many responses; a consultant/head hunter (Prof171) suggested that "*once you have achieved the ultimate success of "Executive Chef" or "Master Chef" stand proud, but do*

mentor others, so they too, can excel in this wonderful world of Culinary, and feeding the people of the world. After all, you too, began your culinary career with much humility and sacrifice, be a good teacher, and help to grow others on your team". The ability to maintain professionalism under extreme pressures has also been identified by Robinson *et al.* (2014). Prof 12 stated that successful chefs should demonstrate "*ability to adapt on market needs/Trends, great managerial skills, research and development abilities, up to date on IT solutions, obviously deep HR management-oriented knowledge, stay always tuned/informed/up to date on relevant market's issues and be able to respond to different cultures"*. He identified adaptability as a key success factor. However, he identified other competencies as important success factors for a career in culinary arts, such as knowledge of IT and HR management. Interestingly, these were not so much valued when participants scored the competency items in the survey questionnaire. Culinary arts is now seen as a combination of science and technology, including the emergence of culinology that challenge chefs in their knowledge, understanding and explanation of the cooking process, as they need to know basic information regarding chemical and physical transformation during food preparation (Suhairom *et al.*, 2019, p.215). Nutrition was also added as one of the environmental factors that influence chefs' knowledge and awareness in the social context cooking. An operational skill, social intelligence has been found to be important among professionals and educators. It refers to the effective communication, teamwork and cooperation within the team.

Three issues were raised in the qualitative data that were not included in Zopiatis's (2010) competencies questionnaire. Firstly, an important factor in chefs' development was identified as the way they are trained and educated. Thus, attendance on vocational or HE culinary arts programs should be combined with on-the-job training and learning at work. An experienced Head Chef (Prof17) argued the following: *"Attend a good culinary school, or if your country supports a trade school, that offers culinary studies. Culinary schools are expensive, when*

compared to trade, get a job in a restaurant, independent, chain, or part of a hotel operation. Learn culinary skills on the job, work in every department, it does not hurt you, to start at the bottom, get the confidence of the chef, he/she will move your career forward. Enhance your culinary career in other F&B opportunities, as they present them to you, choose wisely." There was also criticism on the existing culinary arts curriculum in the UK and a call to rethink the way junior chef are educated in this country. A student (Stu91) stated *"fundamentally if we are talking about enter level chefs, knife skills, food safety, attitude, time management and communication are the key tools, post this leadership, budgets, organizational abilities can be taught*". Participants in all three groups stated that chefs should pass their knowledge to others. Students would like chefs to have 'coaching skills' which was also identified by chefs.

The second new area raised was that of diversity and equality. Students proposed that professionals in the industry should respect different cultures, be able to understand diversity and maintain equality in their kitchens. Professional kitchens are still male dominated (White *et al.*, 2005), but students in this study would prefer this to change. Thirdly, '*passion for food'* seemed to be an important issue, which was not among the competencies identified in the questionnaire.

Theoretical Model/Framework Explanation

The current study developed a model/framework for competencies (Figure 2) required for culinary success, which includes four main clusters of competencies Management / Leadership, Technical, Strategic and Operational. This study was based on Zopiatis' (2010) chefs' competencies questionnaire. During the pilot study there were three more skills, which were added to the scale, namely Food preparation skills, Food safety and Sustainability and waste management. Furthermore, the data analysis revealed that Age, Years of Experience and Type of Business were indicators that make a significant difference in the competencies and skills

required by future chefs. These should be considered in Western cultures (Allen and Mac Con Ioamaire, 2016), as interacting with the job is influenced by age, years of experience and type of business, which reflects similar findings with Wang *et al.* (2011) and Suhairom *et al.* (2019) study who added education as well. The qualitative data analysis showed that additional skills were identified which included diversity management, empathy and emotional control and creativity.

Figure 2: A model for competencies required for culinary success

*Insert **Figure 2** here*

This research shows that factors for success needed for culinary arts in the UK context are broader in scope than Zopitatis' (2010) and Allen and Mac Con Iomaire (2016). The authors suggest that the models to identify competencies should be simple in order to be able to identify the skills incorporated, to be able to measure them and finally to be possible to use in different contexts and cultures.

Conclusions and Implications

Conclusions and theoretical implications

The objective of this study was to identify the competencies required by chefs in the UK for future success. This is one of few studies conducted in the UK context especially in view to Brexit, the COVID-19 pandemic and their impact on the existing shortage of skills in the food industry. It is the first study to investigate chefs' competencies required in the UK industry considering the views of different stakeholders providing empirical evidence from professionals, students and academics. Lack of competencies as identified in this study imply training issues and/or unrealistic expectations from industry in terms of students' preparedness to enter the work environment. In the past years, a lot of attention was drawn to celebrity chefs

and Michelin star chefs, but there is lack of studies on managerial skills and competencies required to work as a chef and succeed in the profession. The authors propose that other studies may not be considered as relevant, as they are either old (i.e. Zopiatis, 2010) or they have not included all three groups. This paper proposes four sets of competencies required for chefs in the UK context, namely Management/Leadership, Technical, Strategic, and Operational (Figure 2). The proposed competencies may have a direct positive impact on company policy on HRM and development i.e. recruitment of chefs, with focus on competencies required upon the selection process. The proposed competency model can be used for different purposes such as curriculum design, recruitment, career development and succession planning (Hu, 2010; Allen and Mac Con Iomaire, 2019; Suhairom *et al.*, 2019). More specifically, the findings of this study confirm the need for a balanced competency view of chefs in the UK. They confirm other studies (Allen and Mac Con Iomaire, 2016; Cooper, 2012; Zopiatis, 2010; Balazs, 2002) on the need for managerial and leadership skills as well as technical skills to be exhibited by chefs. This study adds professionalism and orientation to high standards, which were highly valued by the participants. A shared culture of professionalism is expected of occupational members (Robinson *et al.*, 2014). Although it is a male-dominated occupation, attention to diversity, equality and different cultures are important to succeed. Mentoring and coaching are also added as they enhance the qualities of the members of the teams. This study also proposes that there are differences in competencies perception among different age groups or those with different years of experience and type of business. Younger people value more technical skills, whereas those with more years of experience put emphasis on soft skills, managerial and specific technical skills such as cultural awareness.

Practical implications

The latest statistics provide evidence of a retention problem among chefs in the UK. As stated above by 2022 993,000 more people should be employed in the food sector who will actually replace 870,000 existing employees (People 1st, 2015) creating a retention challenge. This may also impact on the provision of food and food tourism products and services in the UK. Recruiting for chef roles continues to be a major challenge in the sector, forcing some businesses to deskill their operations in order to address the skills gap. Interestingly, the EU Skills Group (2015) reported that half of catering colleges have seen student numbers fall on chef courses, whilst at the same time the number of chef apprentices has also fallen reducing the potential to develop future chefs. Recruiting, training, developing and retaining good professionals with the required competencies to work in the sector may contribute to the development and growth of food tourism in the UK as one good option to deal with Brexit and other employment issues in hospitality and tourism development in the country. In agreement to Lashley (2009) and Ariza-Montes *et al.* (2018), this study proposes that policy makers need to adopt a more complex perception of the chefs' occupation. A chef's career campaign at different school levels could be developed to present the benefits of work in this sector. A link can also be developed with apprenticeships with a target to all age groups and women.

This study includes inputs from all stakeholders involved in the provision and development of chefs. They all agree on the demand for quality of food provided in businesses, which can be a result of proper competencies and skills developed. Adaptability to customers' demands and preferences were identified, as consumers require 'authenticity' and 'home-cooked food' (Lashley, 2009, p.350), this study suggests that this could be provided on the basis of all the above competencies developed among future chefs. The old way of thinking in reference to culinary arts should change to tackle the multifaceted issues driving the shortage of chefs. Current initiatives should be upscaled to maximize opportunities for students. For example, businesses should create a quality workplace, with appropriate hours and shift

patterns, pay and incentives. Poor management, aggressive and sometimes sexist cultures should be eliminated, jobs should be re-engineered, and emphasis should be placed on learning and development. HR managers and culinary curricula should include in their training and development relevant leadership development programs, as well as training on EI and managing people in a diverse multicultural environment. Entrepreneurial skills could also be developed to enrich and enhance the managerial and leadership mindset of chefs. Furthermore, employee performance management systems could use the competencies model proposed to evaluate chefs' performance.

Gersh (2016, p. 32) proposes that "competency-based learning specific to culinary arts is still in its early stages of development". The need to pass the occupational fundamentals to new entrants through teaching was identified by all respondents. The authors suggest that there is a need to review existing curriculum in culinary arts management in the UK, emphasising more managerial and leadership skills, and EI, as existing programs were perceived to be practical, and/or vocational, focusing more on cooking skills and food knowledge. Moreover, food waste management, budgeting, control, knowledge of IT and sustainability were other key operational competencies that should be included in the modules and learning outcomes offered in HE. Students should also be clearly informed about working conditions and expectations in the industry. Practitioners should maintain contact with the delivery of education and training to young chefs to ensure the competencies required are developed in pre-employment. This study may also improve culinary experiential learning (internships) as it provides a framework not only for competencies development at academic level, but also in practicing these in actual working environment. These competencies should be integrated into the pedagogy that aligns with industry needs and may produce graduates who are leaders in the culinary industry.

Research limitations and future research

Limitations in the current study are also identified. Almost half of the participants did not respond to the open-ended question, and all respondents did not refer to non-success factors. Although professionals and employers participated in the study, it did not include the views from HR managers in the industry to better understand the industry requirements on culinary workforce prior knowledge and experience.

Research and the creation of knowledge are valuable means for upgrading and progressing culinary education as well as for promoting food and relating the UK as a food and gastronomy destination. This study provides the opportunity for other studies to explore this occupation and form of tourism in developing longitudinal studies on the skills gap impact on the food sector and the provision of quality food tourism products and services. This study could be duplicated in other countries. As the findings suggested the competencies model proposed by Zopiatis (2010) in his study in Cyprus differs from the one proposed in this study in the UK or the competencies proposed by Allen and Mac Con Iomaire (2016). Other studies may examine if cultural differences may generate different results. Moreover, scholars should address the high staff turnover issue and provide empirical investigation on the reasons that drive graduates to leave the industry in the early years of their career.

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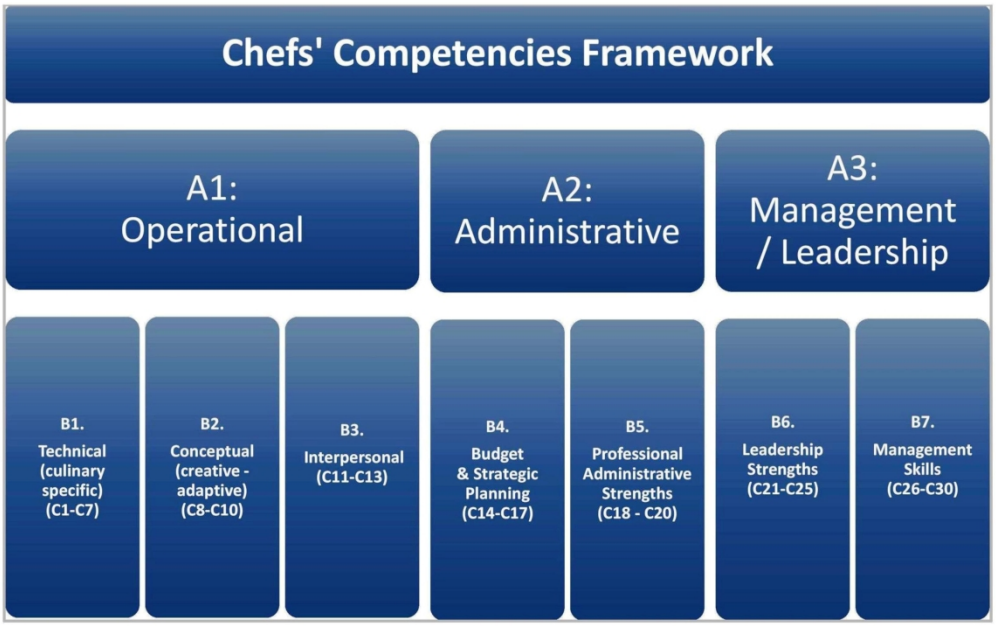

Figure 1

275x172mm (300 x 300 DPI)

Figure 2

403x200mm (300 x 300 DPI)

Birdir and Pearson (2000)[a]	Mean
1. Knowledge of flavours	4.59
2. Knowledge of food sanitation	4.55
3. Ability to distinguish levels of quality in food products	4.55
4. General communication skills (verbal, written, listening)	4.50
5. Ability to make decisions	4.45
6. Ability to conceptualize new products, processes, systems - Creative	4.36
7. Ability to keep ego in check	4.36
8. Ability to see the ``Big Picture''	4.36
9. Ability to work in multi-task environments	4.32
10. Ability to prioritize projects	4.27
11. Knowledge of projected/future food trends	4.27
12. Knowledge of culinary uses and applications of products	4.23
13. Knowledge of current food trends	4.23
14. Ability to balance personal and prof. lives	4.18
15. Ability to take criticism	4.14
16. Ability to control emotion during communication with people	4.14
17. Knowledge of weight and measurement conversions	4.05
18. Skilled at time management	4.00
19. Skilled at motivating a team	4.00
20. Knowledge of formulas for conversion computations	3.95
21. Ability to perform public relations functions with new customers/clients	3.91
22. Ability to balance between competing pressures - Perspective	3.82
23. Knowledge of menu engineering	3.82
24. Knowledge of competitive products	3.82
25. Knowledge of cultural preferences as they affect food products	3.64
26. Skilled in helping others - Mentor	3.59
27. Knowledge of technologies affecting projects	3.55
28. Skilled at general mathematics and statistics	3.55
29. Knowledge of human nutrition	3.45
30. Skilled at computer word-processing	3.27
31. Ability to use internet as a research tool	3.23
32. Knowledge of large production equipment and limitations	3.18
33. Skilled at computer spreadsheets	3.05
34. Skilled at/with computer presentation programs (PowerPoint, CorelDraw)	2.55
35. Ability to develop ``packaging'' for finished products	2.05

Zopiatis (2010)[b]	Mean
1. Professionalism	4.80
2. Knowledge of culinary flavours	4.73
3. Managerial skills (delegating & organizing)	4.73
4. Decision making skills	4.69
5. Appreciation of cost management	4.69
6. Organization skills	4.63
7. Knowledge of recipe and menu development	4.62
8. Adaptation to difficult circumstances	4.61
9. Human skills	4.61
10. Knowledge of food service operations	4.55
11. Communication skills	4.53
12. Ability to motivate others	4.48
13. Verbal and writing skills	4.47
14. Implementing labour cost controls	4.43
15. Time management	4.43
16. Effectively handle staff complains	4.41
17. Ethical contact	4.35
18. Budgeting	4.34
19. Knowledge of diverse cultures	4.33
20. Conduct staff appraisals	4.33
21. Emotional intelligence	4.28
22. Artistic culinary creativity	4.28
23. Computer skills	4.25
24. Knowledge of strategic planning	4.23
25. Ability to innovate	4.18
26. Emotional control and stability	4.18
27. Ability to change	4.16

Competencies Categories Ranking	
Zopiatis (2010)[b]	**Mean**
1. Technical (culinary-specific)	4.55
2. Management skills	4.48
3. Leadership strengths	4.45
4. Professional administrative strengths	4.43
5. Interpersonal competencies	4.42
6. Budget and strategic planning	4.42
7. Conceptual (creative-adaptive)	4.32
Gersh (2016)[c]	
1. Interpersonal	1.34
2. Technical	1.67
3. Leadership	1.80
4. Administrative	1.91
5. Conceptual	2.33

Notes

Rating scale a/b :

5 = extremely important, **4** = very important, **3** = important, **2** = slightly important, **1** = not important

Rating scale c:

1 = essential (most important), **5** = not important

Source: adapted from Birdir and Pearson (2000), p.208; Zopiatis (2010), p.463; Gersh (2016), p.41

Table 1

162x239mm (300 x 300 DPI)

Characteristic	Frequency	Percent
Gender		
Male	247	60.7
Female	160	39.3
Age		
Under 20	58	14.3
21-30	163	40.0
31-40	70	17.2
41-50	71	17.4
51-60	38	9.3
Over 60	7	1.7
Years in service		
Less than 2	84	20.6
2-5	115	28.3
6-10	55	13.5
11-20	48	11.8
More than 20	105	25.8
Education		
No education	3	.7
Secondary school	11	2.7
Further education	115	28.2
University degree	268	66.0
Master	10	2.5
Current employment		
Hotel 4* and 5*	63	15.5
Hotel 3* or less	6	1.5
Restaurant fine dining	39	9.6
Restaurant casual dining	42	10.3
Pub / Bistro / Café	28	6.9
Catering and events	36	8.8
University / College	81	19.9
Not employed	77	18.9
Other	34	8.4
Job Classification		
Executive chef	30	7.4
Head chef	26	6.4
Sous chef	25	6.1
Chef de partie	49	12.0
Commis chef	55	13.5
Lecturer / Instructor	70	17.2
Apprentice	7	1.7
Student Higher Education	118	29.0
Other	27	6.6

Table 2

108x196mm (300 x 300 DPI)

Name	Item	1	2	3	4	Cronbach's alpha
Management/ Leadership	Human skills	.781	.163	.206	.182	
	Managerial skills	.721	.215	.365	.092	
	Ability to motivate	.707	.274	.262	.162	
	Decision-making	.657	.219	.343	.195	
	Time management	.652	.367	.262	.047	
	Professionalism	.640	.323	.139	.239	
	Handle staff complaints	.624	.153	.354	.315	
	Adaptation to difficulty	.614	.430	.195	.105	
	Organisation skills	.613	.430	.230	.050	
	Communication	.564	.376	.020	.370	
	Emotional control / stability	.563	.200	.115	.382	
	Staff appraisal	.530	.128	.421	.304	0.6386875
Technical	Food preparation	.348	.748	.139	.095	
	Food safety	.385	.734	-.013	.117	
	Recipe and menu development	.200	.663	.433	.120	
	Knowledge of flavour	.253	.657	.325	.211	
	Artistic creativity	.034	.590	.500	.155	
	Sustainability / waste management	.195	.572	.224	.211	
	Knowledge of food	.267	.526	.261	.305	
	Change	.412	.478	.342	.166	0.6210920
Strategic	Strategic planning	.316	.240	.725	.224	
	Labor cost control	.350	.256	.719	.236	
	Cost management	.373	.249	.676	.247	
	Budgeting	.360	.317	.673	.136	
	Innovate	.199	.512	.514	.206	0.6614647
Operational	Verbal communication and writing	.249	.245	.062	.739	
	Computer skills	.025	.118	.231	.738	
	Knowledge of cultures	.185	.161	.241	.738	
	Ethics / responsibility	.463	.140	.220	.523	
	EI	.490	.094	.100	.521	0.6516358

Table 3

159x214mm (300 x 300 DPI)

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	14.387	47.957	47.957	13.975	46.582	46.582	6.162	20.542	20.542
2	1.768	5.892	53.849	1.330	4.433	51.015	4.597	15.325	35.866
3	1.553	5.176	59.024	1.125	3.751	54.766	3.380	11.267	47.134
4	1.212	4.040	63.065	.840	2.799	57.565	3.129	10.431	57.565
5	.909	3.029	66.094						
6	.821	2.736	68.830						
7	.783	2.611	71.441						
8	.755	2.516	73.958						
9	.657	2.190	76.147						
10	.625	2.082	78.229						
11	.535	1.782	80.011						
12	.485	1.616	81.627						
13	.463	1.543	83.170						
14	.437	1.457	84.627						
15	.417	1.391	86.018						
16	.416	1.386	87.404						
17	.392	1.305	88.709						
18	.365	1.217	89.926						
19	.340	1.134	91.059						
20	.319	1.064	92.124						
21	.302	1.008	93.131						
22	.275	.915	94.046						
23	.265	.883	94.929						
24	.258	.860	95.789						
25	.250	.834	96.623						
26	.231	.771	97.394						
27	.226	.755	98.149						
28	.204	.679	98.827						
29	.189	.630	99.457						
30	.163	.543	100.000						

Extraction Method: Principal Axis Factoring.

Mean	Management Leadership	Technical	Strategic	Operational
Professionals	4.20	4.13	3.82	3.83
Educators	4.40	4.31	4.04	3.95
Students	3.92	3.73	3.49	3.76