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A European - Australian Comparative Study on Competency Gaps in Chef Training: Implications for Chef Training in Australia

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Abstract

Background: *This study investigates the competency gaps in chef training in Australia by comparing it with European practices.* **Objective:** *It identifies competency gaps in Australian chef training programs particularly in foundational culinary techniques, business acumen and adaptability by comparing them with European practices and propose a model for improvements based on these findings* **Methodology:** *Employing a comparative qualitative design, this study gathered data through semi-structured interviews with 29 industry professionals in Europe and Australia. Thematic analysis, based on Costa's (2019) framework and drawing on Braun and Clark's (2006) approach, was used to analyze the data.* **Results:** *Based on the findings the proposed model emphasizes practical experience, a broader curriculum and a focus on mental resilience, aiming to enhance graduate employability and meet the evolving demands of the culinary industry.* **Conclusion:** *By addressing these gaps and adopting a more holistic approach, Australian chef training programs can better equip graduates for success in the evolving culinary landscape.*

Keywords: Chef training, competency gaps, graduate employability, integrative theoretical model

Introduction

The culinary field in both Australia and Europe is undergoing significant transformation, driven by evolving consumer expectations, advancements in technology and an increasing emphasis on sustainability. These shifts necessitate that chef training programs be revised to equip graduates with the competencies that the modern industry demands. Competency-based training (CBT) is designed to meet these needs; however, there remain concerns regarding its effectiveness in adequately preparing chefs for the workforce. Research indicates that understanding the specific competencies required by chefs, particularly in executive roles, can mitigate the difference between educational outcomes and competency requirements for jobs, thereby enhancing the relevance of training programs (Wan et al., 2017). This study aims to compare chef training in Australia and Europe to identify skill gaps and propose improvements, ultimately enhancing the effectiveness of Australian chef training.

By examining the perspectives of industry professionals across both regions, this research seeks to illuminate how chef competencies are evolving and to develop a training model that aligns more closely with industry needs in Australia. The culinary profession has become increasingly glamorized, particularly through the rise of celebrity chefs, which has attracted many young individuals to culinary training (Marinakou & Giousmpasoglou, 2020). However, traditional training methods often fall short of meeting the

practical demands of the industry, particularly in terms of hands-on skills and real-world experience. Studies have shown that there is a notable mismatch between employer expectations and the competencies imparted by culinary schools, emphasizing the need for a curriculum that prioritizes experiential learning and practical application (Kalargyrou & Woods, 2011).

The growing demand for skilled chefs highlights the urgency of this issue, as traditional training programs struggle to keep up with the culinary industry's evolving requirements. A significant body of literature suggests that training designed to enhance knowledge, skills and attributes can lead to increased job satisfaction and retention within the hospitality sector (Ko, 2012). This study posits that by comparing chef training programs in Australia and Europe, we can uncover shared challenges and regional differences that contribute to this global issue. Such an analysis will facilitate an in-depth understanding of the problem and inform the development of a training model that can be applied more broadly across the culinary education landscape.

Competency-Based Training (CBT) Models: The concept of competency has been extensively discussed in the literature, leading to diverse interpretations and applications. Early definitions focused on the functional adequacy and possession of necessary skills and attributes for successful task performance (Gale & Pol, 1975; Mariampolski et al., 1980). However, the distinction between competence and competency has been a point of contention, with some scholars viewing competence as a task-specific ability and competency as a broader set of behavioral traits (Woodruffe, 1993; Whiddett & Hollyforde, 2007).

The evolution of CBT models reflects a shift from traditional time-based education to a focus on measurable outcomes and student-centered learning (Nodine, 2016). This approach has been adopted in various vocational fields, including culinary arts, ensuring that graduates possess the skills and knowledge required by their respective fields. However, CBT models have faced criticism for their potential to fragment learning, overlook the importance of context and knowledge acquisition processes and reduce education to a form of human engineering (Engelbrecht, 2007; Sandberg, 2000). CBE/CBET model emphasizes practical, on-the-job competencies, allowing students to translate learning into real-world application. It utilizes training packages that outline required knowledge, skills and performance standards. The model focuses on industry-relevant training and smooth workforce transition. It also promotes student-centered learning, allowing trainees to learn at their own pace. However, there are certain challenges when it comes to implementation, including difficulties in establishing an effective evaluation framework and potential conflicts between student and system accountability. The model though flexible can become diluted due to administrative complexities and trainers' resistance to change.

The mastery-based learning model is characterized by prioritizing students' mastery of skills and knowledge, allowing for individualized learning timelines and instructional methods. It fosters a deeper understanding of course material and encourages students to achieve competence before moving on to new material. However, this model is not feasible in all educational contexts due to constraints in time and resources. There is also the problem in defining and quantifying mastery.

The Outcome-Based Education (OBE) model focuses on student outcomes and the design of instructional practices that enhance skills, abilities and knowledge, rather than solely relying on standardized processes. Though limited by the problems in defining and assessing outcomes and the significant adjustments that are needed to be compatible with traditional educational structures, its strength lies in its student-centered approach and encouragement of developing real-world skills and competencies.

Chef Competencies and Graduate Employability: The concept of competency has been discussed in the literature, leading to diverse interpretations and applications (Gale & Pol, 1975; Mariampolski et al., 1980; Woodruffe, 1993; Whiddett & Hollyforde, 2007). Early definitions focused on possessing the necessary skills and attributes for successful task performance, with some scholars distinguishing between competence as a task-specific ability and competency as a broader set of behavioral traits. Research on chef competencies has identified a range of skills and attributes essential for success in the culinary profession. Technical culinary expertise; including proficiency in basic cooking techniques, such as knife skills, sauce preparation and understanding ingredients and adapting to diverse culinary environments. These skills form the bedrock of culinary practice and are considered crucial for consistency and quality in food

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preparation. Having adequate administrative and managerial capabilities, effective communication, financial literacy and proficiency in basic software are crucial for managing kitchen operations and ensuring business success. To contribute to a profitable and sustainable business, chefs need to have business acumen like financial literacy, cost control, menu planning and an understanding of market trends, along with adaptability towards technological advancements and diversifying culinary environments. Chefs must also enjoy good personality qualities such as communication, adaptability, passion, mental strength, emotional control and the ability to handle stress and pressure effectively (Birdir & Pearson, 2000; Chung-Herrera et al., 2003; Zopiatis, 2010).

The concept of graduate employability has also gained prominence, which is a concept that extends beyond simply securing a job. It encompasses the skills, knowledge and personal qualities that improves chances of graduate employability and also increase the odds of them thriving in their chosen profession, benefiting themselves, the workforce, economy and community (Yorke, 2004). It emphasizes the need for graduates to possess not only technical skills but also generic and transferable skills that enhance their adaptability and success in the workplace (Yorke, 2004). The Australian Quality Training Framework (2013) listed nine generic skill groups in their revised employability model; Communication; written and oral, problem-solving, thinking; critical, analytical and conceptual, information management, leadership, interpersonal skills, grit and self-management.

However, the literature reveals a gap in understanding the specific competencies and capabilities required for trainee chefs in the context of the evolving culinary landscape. While studies have explored the importance of practical experience and industry exposure, there is a gap when examining the alignment between graduate competencies and employer expectations, particularly in a comparative context between different regions (Chapman & Lovell, 2006; Freeland, 2000).

The Need for a Comparative Approach to Address the Evolving Needs of the Industry: There is a global trend toward competency-based training in culinary education. By comparing different systems, it is possible to identify common challenges, successful strategies (Park & Millar, 2014) and best practices that can inform curriculum development and enhance the effectiveness of training. A comparative approach allows for a broader understanding of the skills, knowledge and attributes that make a successful chef (Pavesic, 1993). Insights generated from diverse perspectives of different systems will also allow the creation of a more robust conceptual framework for chef training that can be global in its reach rather than local (Jones et al., 2022a; Manoharan et al., 2021a). Comparing culinary education systems in different regions strengthens the study's findings and enhances their relevance and applicability.

The contemporary hospitality landscape demands a broader skill set than the traditional culinary training that centered around technical skills. Soft skills, such as communication, teamwork, adaptability and resilience are becoming increasingly important (Sumanasiri, et al., 2015. The competitive nature of the industry requires chefs to have an understanding of financial management, marketing and basic business principles to survive.

This study draws on three different learning theories and proposes an integrative framework to serve as the theoretical foundation for the study.

Situated Learning Theory: The educational theory of situated learning, sometimes referred to as situated cognition, aims to comprehend the social aspect of learning. It makes the case that education cannot be transferred from its original context to a classroom setting. This theory states that contextual instruction is the most effective way to teach knowledge (Brown et al., 1989). For example, imparting knowledge about cooking inside a classroom through books is not as effective as doing it in a kitchen using cooking materials. According to "The four main tenets of Wilson's" (1993) situated learning experience serve as the foundation for the activities that are developed in the classroom: 1. Knowledge is derived from the actions of commonplace situations. 2. Knowledge is understood to be contextually derived and transferable only to similar contexts. 3. The social process that is essential to acquiring knowledge is comprised of the capacity to think, perceive, resolve and interact. 4. Learning is an all-encompassing process that involves interacting with rich and intricate social environments made up of people, activities and circumstances. Based on this, culinary education should immerse aspiring chefs in real-world kitchen environments. Instead of solely relying on traditional classroom lectures and textbook learning, chef training programs should prioritize hands-on experience, apprenticeships and mentorships within actual restaurant

settings. By engaging in situated learning, future chefs can develop the practical expertise and adaptability needed to thrive in the demanding culinary profession.

Education Science Theory: Billett (2006) draws upon psychology and philosophy to develop an education science. The education science theory posits that the main problem in the system lies in the assumption that the knowledge required for different kinds of professions can be taught through vocational education. It also assumes that this diverse set of knowledge can easily be learned and measured. This assumption underestimates the depth, extent and complexity of how knowledge manifests itself in occupational situations. The current vocational training model can be analyzed from the educational science perspective to encourage the development of a process- based curriculum, where the assessment and instruction methodology are closely aligned with goals related to adaptability, real workplace requirements and innovative working strategies, to ultimately making learning adaptable in occupational practice.

Threshold Theory: Threshold theory relies on the idea of threshold concepts developed by Meyer and Land (2005). The threshold concept aims to contextualize the interests of policy makers and researchers in understanding and improving learning in higher education. There are core outcomes, amongst the outcomes that can be determined for learning in a field, that include 'seeing things in another way'. These concepts have special significance for learners within a discipline as they find themselves typically blocking on these concepts due to their lack of experience or a narrower lens of looking at things from various perspectives. If work is done to improve the learners understanding of these concepts, the learner is not only able to understand the concept but also comprehend related concepts more easily. Hence, the Threshold concepts theory help curricula standardise their design yet keep them specific, while allowing learners a theoretical understanding of various psychological and social processes that eventually helps them in the real world by launching them into that real world well before it actually happens. This allows students to experience the emotional and social dimensions of transition as they are able to achieve the learning outcomes needed to survive in the real world in a more holistic sense (Gourlay, 2009).

Integrative Theoretical Framework: The integrative theoretical framework visually presented below combines the strengths of Situated Learning Theory, Education Science Theory and Threshold Theory to address the identified competency gaps. Situated Learning Theory emphasizes the importance of learning within an authentic context, ensuring graduates can apply their skills in real-world scenarios. Education Science Theory prompts a shift towards a more holistic and process-oriented curriculum, fostering adaptability and critical thinking. Threshold Theory guides the identification and explicit instruction of key concepts to deepen understanding and facilitate knowledge transfer. This integrative approach aims to create a more comprehensive and effective chef training model.

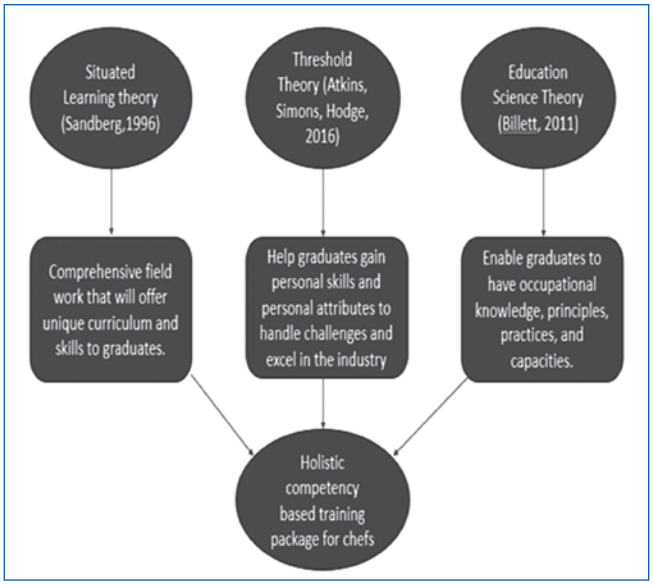

Figure 1: *Training Model*

This study holds significant implications for the Australian culinary landscape by addressing the competency gaps in chef training programs. By comparing Australian practices with European models, the research aims to identify areas for improvement and enhance the quality of chef education in Australia. The findings of this study will be valuable for educational institutions, industry stakeholders and aspiring chefs, contributing to the development of a highly skilled and adaptable culinary workforce.

Objectives

- To identify competency gaps in Australian chef training programs by comparing them with European practices.
- To propose improvements to Australian chef training based on the identified gaps and best practices observed in Europe.

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- To enhance the effectiveness of Australian chef training and better equip graduates for success in the evolving culinary industry.

Methodology

Research Design: This study employed a qualitative research design to gain an in-depth understanding of industry professionals' and educators' perceptions and experiences regarding chef competencies and training. The comparative approach was adopted to address the lack of comparative studies in the existing literature and to leverage the similarities between Australian and European vocational education and training systems. By comparing and contrasting the perspectives of industry professionals in both regions, the study aimed to identify competency gaps and best practices that could inform chef training reforms in Australia.

Locale: Participants, including experienced chefs, teachers and hospitality industry professionals, were recruited from Europe and Australia.

Sampling Design: The study utilized purposive sampling to select participants (29) who could provide rich and relevant information based on their expertise and experience in the culinary field. This method was deemed appropriate as it allowed the researchers to identify and recruit individuals who possessed the specific knowledge and insights needed to address the research objective.

Tools and Technique: The data was collected using semi-structured interviews for both phases of the study, allowing for the balance between structure and flexibility, allowing the researcher to explore predetermined themes while also delving deeper into emerging topics and individual experiences. Semi-structured interviews provide a degree of 'thematic consistency', which allows for exploration of 'emerging themes' (Alvesson & Sandberg, 2011). The use of open-ended questions encouraged participants to share their perspectives and experiences in detail (Mason, 2002; Kvale, 1996). Prior to conducting the interviews, the researchers approached potential participants to confirm their availability and schedule a suitable time for the meeting. One-on-one interviews were conducted with European interviewees in person, while Australian participants were interviewed via an online meeting platform. This approach allowed for flexibility and ensured that all participants could contribute their perspectives regardless of their location.

Data Analysis and Statistical Analysis: Data analysis was conducted using a rigorous and systematic process based on Costa's (2019) framework, drawing on Braun and Clark's (2006) approach of thematic analysis. This involved four key stages: data familiarisation, where researchers immersed themselves in the interview transcripts; coding, where segments of data were assigned codes representing key concepts; sorting, where similar codes were grouped to identify patterns; and theming, where overarching themes were developed to capture the essence of the data and provide insights into the research questions.Trustworthiness is significant in qualitative inquiry, as it supports the findings' value, especially in studies that use thematic analysis where categories are created from raw data without a standard categorization matrix (Elo et al., 2014) To ensure trustworthiness, the study employed triangulation (Creswell, 2007) by using multiple data sources, including interviews with professionals from different backgrounds and geographical locations, to corroborate findings and reflexivity by acknowledging the researcher's positionality and minimizing bias. Credibility conveys dependability (Tracy, 2010; cited in Tracy, 2013). The study is made credible by ensuring transparency by maintaining a clear and auditable data analysis.

Results and Discussion

Profile of Participants: Table 1 and Table 2 provide the profiles for the European professionals and the profiles for the Australian professionals, respectively.

Table 1: *Profiles for the European professional*

Participant No.	Profile Overview
Participant 1	A UK-based senior chef lecturer with over 22 years' work experience in the hospitality field as a chef and educationist.
Participant 2	A UK-based executive chef with around 48 years' experience in the industry
Participant 3	A UK-based chef with over 33 years' of industry experience
Participant 4	A hospitality executive based in Europe with over 30 years of extensive industry experience.
Participant 5	An educationist in the hospitality education sector with a rich experience of several years around Europe (Female).
Participant 6	A UK-based hospitality executive with over 15 years of experience in the industry.
Participant 7	UK-based executive and chief lecturer in reputed institutes of the hospitality sector with an experience of more than 10 years (Female).
Participant 8	UK-based hospitality executive in reputed institutes of the hospitality sector in UK for several years (Female).

Table 2: *Profiles for Australian professional*

Participant No.	Profile Overview
Participant 1	A senior chef and restaurateur with 40 years' experience in the industry and education sector.
Participant 2	A senior chef with 40 years' experience and expertise in the hospitality industry and education sector
Participant 3	A senior chef with more than 30 years' working experience in a range of local and international hotels (Female)
Participant 4	A senior chef with several years of experience in the industry. Expert in cooking and Business Management.
Participant 5	A senior chef with over 38 years' rich experience and ample expertise in diverse areas of the hospitality and education sector.
Participant 6	A chef and restaurateur with over 20 years' experience in the field across the world
Participant 7	A senior chef with 40 years' of service as a chef, businessman and educator.
Participant 8	A senior chef and educator with 25 years' of experience in the hospitality industry across the world.
Participant 9	A senior chef and restaurateur with more than 30 years' experience, currently educating young chefs in Australia.
Participant 10	Experienced chef with a background in food manufacturing, product development and business development.
Participant 11	Seasoned chef and industry trainer/assessor with more than 25 years' experience.
Participant 12	A senior chef, business owner and educator with more than 30 years' experience in cooking and business management.
Participant 13	A senior chef with around 25 years' work experience in the hospitality industry.
Participant 14	Hospitality professional with more than 20 years' experience, currently working in education.
Participant 15	Industry educationist with 20 years' experience and international training as a chef.
Participant 16	Executive chef with 20 years' experience, educated in India and currently working in Australia.
Participant 17	Chef with more than 25 years' experience focused on making hospitality accessible for people with disabilities.
Participant 18	Chef and educator with 20 years' experience, passionate about experimentation and new challenges.
Participant 19	Hospitality business owner and trainer with expertise in business management.
Participant 20	A senior chef with more than 27 years' experience, including international work and diverse cuisine knowledge.
Participant 21	A senior chef with more than 35 years' experience in the industry across the world and corporate food retail experience.

The interviews conducted in Europe and Australia reveal crucial competency gaps in graduate chef training and highlight contrasting perspectives between industry professionals in these regions.

Competency Gaps- Shared Concerns: Professionals in both regions consistently emphasised the need for graduates to possess strong foundational cooking skills, including knife work, sauce making, understanding ingredient functions and product knowledge. This finding suggests a gap between educational focus and industry expectations regarding practical culinary skills. Industry exposure was recognized as valuable in both regions, whether through apprenticeships, internships, or experiencing diverse culinary cultures. This highlights a potential gap in current training models that may not adequately bridge theoretical knowledge with practical application. Furthermore, apprenticeships and exposure to diverse environments could develop resilience and a global mindset.

Both Europeans and Australians stressed the need for chefs to possess business skills, such as costing, budgeting, financial management and menu control. This finding suggests a need for culinary education to incorporate business principles into the curriculum so chefs can contribute to the profitability and sustainability of the business. Table 3 includes selected quotes from the interview to illustrate the findings.

Table 3: *Excerpts from Interviews*

Excerpt from interviews	Competency Gap
"They have to understand the foundations of cooking...braise a roast, a grill, a sauté, a poach, if you understand those fundamentals, then the product, if you understand the product as well, you can build recipes." (Participant 2, Executive Chef, UK)	Foundational Skills
Unfortunately due to COVID, we are fast-tracking the students...but what are the implications? Turns out a lot of these chefs aren't aware of the basics of costing or good rostering practices." (Participant 2, Senior Chef, Australia)	
"The assessment doesn't exist there as a point of view of ticking the box, they need to really burn the things to sort of like, say, well, obviously, you don't want to make it human...they don't have those skills, because they haven't had the time to practice." (Participant 2, Senior Chef, Australia)	

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"It's a lot about practicality and practical work. Practical knowledge over anything else, gender, race, nationality, schooling" (Participant 3, Restaurant Owner, UK)	Industry Exposure and Adaptability
"The kind of the learning and exposure that the students get when they are working in a real workplace and the kind of the situations they will come across are the kinds to handle...So, I believe for me, apprenticeship is one of the best methods that we have because students get enough time and you'll need that kind of training for two or three years, for you to work in industry and get skilled before you are qualified." (Participant 11, Trainer and Assessor, Australia)	
"Students are not used to the pressure of working in a kitchen environment... they need to get as much apprenticeship experience as possible before coming into the field, as that will improve their resilience and prepare them for what is in store for them." (Participant 4, Executive, Europe)	
Well, it is important to understand the costs and how to work out costs also as that allows you to make the correct kind of profit margins. And it is known that, without profit, you will do nothing. (Participant 3-Restaurant Owner, Europe)	Business skills
"Business skills, I would say are equally important. Because if you have a good product, you need to have customers to buy and consume that product. So you could be the best chef in the world. But if you are not business savvy, your products, there'll be no takers for it." (Participant 8, Senior Chef, Australia)	
"They should be taught about managing the business side of things, the food cost, the labour cost, the personalities and making sure you're getting the best out of everyone." (Participant 2, Senior chef, Australia)	
"Everybody's different. Everybody's got different backgrounds, different cultural beliefs, different blend techniques, cope differently with stress. Some people thrive on being under pressure, some people don't...they actually get anxious by it. And it's not good for them mentally." (Participant 13, Senior chef, Australia)	Mental Maturity and Resilience
"Most recent graduates with little apprenticeship experience tend to face a very hard time, because the industry can be ruthless and a person needs to be aware of what they are getting into, know how to handle vulnerability, prevent themselves from being volatile and be ready to tolerate executive chefs who are extremely hard to work with by keeping their ego 'back at home'." (Participant 3, Restaurant Owner; Europe)	

Contrasting Perspectives: Europe vs. Australia: Four themes have emerged from the data on contrasting perspectives from the European and Australian regions. Competency, challenges, training and graduate expectations. Europeans emphasized foundational cooking skills and techniques as the backbone of culinary practice, along with valuing a global mindset and adaptability to diverse culinary environments. While acknowledging the importance of foundational skills, Australian professionals placed greater emphasis on personal qualities and attitudes, such as discipline, passion and empathy, as defining competencies. European professionals openly acknowledge the mental and emotional stress associated with the demanding nature of the culinary industry, meanwhile, the Australian focus was on external challenges like high costs, limited resources and demanding customers. Mental and emotional stress was indirectly discussed when emphasizing resilience. The European culinary industry does acknowledge the value of practical experience and apprenticeships but places equal or greater emphasis on formal culinary education. They have reservations about the negative impact of technology on culinary artistry. Australian culinary professionals strongly advocate for practical experience and apprenticeships. They are critical of the current educational landscape because of its focus on theory rather than actual training. Unlike their European peers, the Australians are much more open to embracing technology for efficiency and innovation. Graduates from both regions are expected to possess strong foundational skills, in Europe there is a demand for a global mindset and resilience, while in Australia the focus is on business acumen with foundational culinary expertise. Table 4 includes selected quotes from the interview to illustrate the findings.

Table 4: *Themes Based on Excerpts from Interviews from European and Australian Participants*

Theme	European Excerpts	Australian Excerpts
Competency Emphasis	"Cooking is very important and we overlook that. And when I say cook, to understand the methodology of cooking and to understand the practical element of that." (Participant 1, Senior Chef Lecturer, UK)	"I think the best qualities that one can have in this role is to actually buy the confidence and the commitment of the people you're dealing with and have the appetite to take risks as well as the leadership skills to motivate people." (Participant 8, Senior Chef, Australia)

Challenges Faced	You must to be ready for it, as there is not much earning, you are also far away from home and often you end up getting very little sleep." (Participant 4, Executive, Europe)	"The most difficult challenge that he faced in his career was managing a kitchen in times of high food prices, high rent and high wages." (Participant 20, Senior Chef, Australia)
Views on Training	"Practical knowledge over anything else, gender, race, nationality, schooling." (Participant 3, Restaurant Owner, UK)	"It doesn't matter which level the person is in a kitchen organisation, I think they would have to adopt technology and they should be open to it." (Participant 11, Trainer and Assessor, Australia)
Graduate Expectations	"They should be full of energy, full of enthusiasm for their industry and the people within it." (Participant 6, Dean of Hotel School, UK)	"The sooner students can get a grip on the financial side and business skills, the better - this covers all aspects, not only just putting pen to paper or fingers to keyboard on a recipe and costing, which he saw as only 5% of the battle. The other 95% is the development of the rest of the restaurant as a whole." (Participant 21, Senior Chefs, Australia)

The data identifies a gap in foundational culinary skills among Australian graduates making them underprepared for the demands of professional kitchens, despite their theoretical knowledge, this underscores the limitations of a solely classroom-based approach and emphasizes the need for practical experience and apprenticeships. The calls for increased apprenticeships and real-world kitchen exposure highlight the need to situate learning within the workplace. This will enable students to develop practical skills, adaptability and problem-solving abilities in authentic contexts. The bridging of this competency gap calls for a combined approach of theoretical knowledge and practical application. This is supported by Woolcock's (2011) research that explored the experiences of Australian Commercial Cookery students and found that while students receive theoretical training, there is often insufficient exposure to practical experiences that would enhance their culinary skills. The emphasis on foundational skills in both regions highlights the importance of mastering basic culinary techniques as a cornerstone of chef competency. This finding aligns with previous research that emphasizes the significance of practical skills in culinary education. For example, Kalargyrou and Woods (2011) highlighted the need for a curriculum that prioritizes experiential learning and practical application. The current study reinforces this notion, suggesting that Australian chef training programs should incorporate more opportunities for hands-on learning and real-world application of culinary techniques.

This focus on technical skills creates a disconnect with the industry's broader demands for business acumen, management capabilities and soft skills resonating with Billett's (2006) educational science perspective. The findings suggest that Australian chef training programs should move beyond a narrow focus on technical skills towards a more process-based approach in chef training. The curriculum should be designed to nurture personal and interpersonal growth, critical thinking, adaptability, innovation and a deep understanding of real-world complexities. This is supported by Teixerira et al. (2020) work that conducted a systematic review of instruments assessing culinary skills and found that many assessments focus on specific domains such as cooking self-efficacy and competencies, rather than providing a comprehensive evaluation of practical skills that would adequately prepare graduates for the demands of the culinary workforce. To enhance graduate employability the chef education training should incorporate training in financial planning, cost control and business management to thrive in increasingly competitive culinary landscapes. This also requires chefs to possess emotional intelligence, stress management skills and a resilient mindset along with effective communication, collaboration and conflict resolution skills. The need for chefs to possess business skills, such as costing, budgeting and financial management, highlights the evolving nature of the culinary profession. This finding aligns with the broader trend of incorporating business principles into culinary education to ensure that graduates are equipped to contribute to the profitability and sustainability of their businesses as highlighted by the works of Chung-Herrera et al. (2003), Sumanasiri et al. (2015) and Marinakou and Giousmpasoglou (2020). The inclusion of business skills in chef training programs can enhance graduate employability and empower chefs to make informed decisions in a competitive culinary landscape.

While situated learning emphasizes the importance of experiential learning, threshold concepts acknowledge the need for standardised knowledge and skills within a specific vocation. The data identifies several threshold concepts in the context of chef training. One is a deep understanding of ingredient properties, interactions and culinary applications. This is fundamental for creating innovative and flavourful dishes. Another is to develop a refined palate and honed sensory evaluative abilities. The dynamic nature of the kitchen requires chefs to be able to adapt to changing circumstances and think critically. By consciously addressing these conceptual hurdles, educators can facilitate a more profound understanding of the culinary profession and empower graduates to navigate the complexities of the industry.

The comparative analysis between Australian and European perspectives offers valuable insights for chef training reforms in Australia. The European emphasis on foundational skills, cultural awareness and mental resilience suggests potential areas for improvement in Australian programs. The strong apprenticeship tradition in Europe highlights the benefits of integrating practical experience into training from an early stage. The integrated theoretical framework offers a significant contribution to chef training by providing a comprehensive model that addresses the identified competency gaps. By combining the strengths of situated learning, educational science and threshold concepts, this framework guides the development of a curriculum that not only emphasizes practical skills but also fosters critical thinking, adaptability and a deeper understanding of culinary principles. This holistic approach aims to better prepare graduates for the complexities and challenges of the modern culinary industry, ultimately enhancing their employability and professional success.

Conclusion

This study has explored the competency gaps in Australian chef training by comparing it with European practices. The research proposes an integrative model incorporating situated learning, educational science and threshold concepts to enhance chef training. This model emphasizes practical experience, a broader curriculum encompassing business skills and personal development and a focus on mental resilience. By addressing these gaps and adopting a more holistic approach, Australian chef training programs can better equip graduates for success in the evolving culinary landscape, ensuring they possess the necessary skills, knowledge and attributes to meet industry demands and thrive in their careers. The research suggests a change in curriculum and method of instruction in multiple areas. There is a need to move towards a more practical and hands-on kind of education with apprenticeships, internships and work-integrated learning being blended with theoretical education. Furthermore, education should be treated holistically, moving beyond technical skills to incorporate business acumen, management capabilities and soft skills, fostering the development of well-rounded professionals. The threshold concepts need to be addressed by explicitly teaching and scaffolding key conceptual hurdles that can facilitate deeper understanding and enhance the transferability of knowledge and skills. The dynamic and stressful professional kitchen environment requires the education model to focus on nurturing mental resilience by incorporating training on stress management, emotional intelligence and coping mechanisms. New chefs need to be culturally sensitive and aware, the training can facilitate exposure to diverse cuisines and cultures through international experiences and collaborations.

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