



Original Research Paper

Chef Professionalism at the Human-Animal Food Interface: Developing a Pet Chef Supplementary Competency Framework

Osman Keskin

Department of Gastronomy and Culinary Arts, Bitlis Eren University, Bitlis, Türkiye. okeskin@beu.edu.tr,

ORCID: 0000-0002-9354-2065

Scopus ID: 60809965400

Abstract

Preparing home-prepared, fresh, cooked and customized diets for dogs and cats creates a set of interconnected requirements that includes nutritional adequacy, recipe fidelity, food safety, process control, portion accuracy and acceptance. Veterinary nutrition research describes the clinical and nutritional side of these requirements in detail, while the chef competency literature explains the technical and managerial basis of professional kitchen production. Recent hospitality research further shows the growth of a pet-inclusive foodservice context in which dogs take part in the restaurant experience, dog-specific menus shape consumer behavior, and some operators offer dedicated meals, cakes, tasting menus and celebration services. This study was conducted to identify the culinary implementation layer between these two fields of knowledge and to develop an evidence-based supplementary competency framework for Pet Chef specialization. The research combined a structured integrative evidence review with a domain-to-culinary competency mapping approach. The core analytical corpus was built from three source groups: chef competencies, canine and feline nutrition, and culinary-interface evidence. Each source was analyzed through the codes domain requirement, culinary relevance, existing chef competence, competency gap, culinary translation, supplementary competence and professional boundary. The findings identify nine supplementary competency domains: companion animal nutrition literacy; formulation interpretation and recipe fidelity; ingredient suitability and nutritional function; nutrient-aware culinary processing; pet-food safety and hazard control; precision weighing, portioning and batch production; palatability-oriented culinary preparation; quality assurance, traceability and process control; and interprofessional culinary practice. The Pet Chef role is defined as a culinary implementation specialization that converts approved nutritional requirements into controlled and traceable kitchen production.

Keywords: Pet Chef; culinary specialization; companion animal nutrition; culinary competence; food safety; dogs; cats; pet-friendly restaurants

1. Introduction

Feeding dogs and cats covers a wide field of practice that includes commercial complete diets together with home-prepared, freshly cooked, raw, mixed and individualized diets. This range has a direct consequence for kitchen production. Preparing a diet involves a chain of connected production tasks: maintaining nutritional adequacy, following the recipe accurately, measuring ingredient and supplement quantities precisely, selecting appropriate process conditions, controlling microbiological risks, storing the product correctly, and bringing it into a form the animal will consume [1–3].

The changing position of companion animals within the household supports the social context in which pet-inclusive foodservice has developed [4,5]. Consumer research has shown that pets can take part

in family identity, care practices and celebration rituals, and their inclusion in family celebrations such as birthdays is an early example of this relationship [4]. More recent research links patterns of pet humanization and pet engagement to differences in pet food preferences [5]. This social shift is also visible in hospitality. The perceived value of the pet-friendly restaurant experience is associated with future purchase intention and willingness to pay a premium price [6]. Among pet-owning customers, attentive pet-inclusive service and special arrangements have been associated with positive emotional responses [7]. Experimental evidence indicates that dog-specific menu items can increase dining intention, word of mouth and total spending [8].

Industry practice shows that this trend has reached kitchen production. Lazy Dog Restaurants serves

*Corresponding Author:

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grilled chicken or a burger patty with brown rice and vegetables on a separate dog menu and uses separate serviceware [9]. Dogue SF in San Francisco produces freshly prepared foods, custom cakes and pastry items for dogs, and offers birthday and “gotcha day” celebrations along with chef’s tasting menu experiences [10]. These examples show that a companion animal can become an active service recipient within professional foodservice, and that pet-inclusive hospitality has moved from permitting animals on the premises toward planned food production and service.

Studies of home-prepared diets show the nutritional consequences of deviations along the production chain. Stockman et al. [11], who examined dog recipes, and Pedrinelli et al. [12,13], who evaluated dog and cat recipes, reported that many formulations failed to meet recommended levels for one or more nutrients. In recipes for cats, ambiguity in recipe instructions, insufficiently defined ingredient quantities and variation in preparation methods were among the factors that reduced nutritional consistency [14]. When users omit an ingredient, substitute it, change a quantity or stop using a supplement, the final nutrient composition can change [15]. These findings give direct weight to recipe fidelity and precision execution in professional production.

Food safety is the second core requirement area. Raw meat-based diets have been associated with *Salmonella*, *Listeria*, *Enterobacteriaceae* and other zoonotic risks, and storage and thawing conditions can have a marked effect on microbial load [16,17]. The pet food recall literature shows the importance of biological and chemical contamination, formulation errors and supply chain problems for quality assurance systems [18]. Professional preparation therefore requires hazard analysis, cross-contamination control, temperature management, traceability and process documentation within the pet food context, in addition to general kitchen hygiene [19].

The nutritional and sensory consequences of culinary processing also carry weight. Thermal processes can improve microbiological safety, alter protein and starch digestibility, and reduce the availability of certain amino acids under intensive processing conditions [20]. The fresh pet food literature shows that the effects of different processing methods on nutrient availability and digestibility vary with ingredients and process conditions [21]. Palatability research shows that aroma, texture, moisture, product form, particle structure and serving temperature can affect food acceptance in dogs and cats [22,23]. The higher preference of aging cats for warmed wet food shows

that serving temperature is a culinary variable under direct kitchen control [24].

Part of these requirements overlaps with the existing competencies of professional cheffing. The chef competency literature identifies technical culinary skills, recipe execution, ingredient knowledge, food safety, kitchen organization, management, communication and problem solving as core components of professional performance [25–28]. Preparing food for dogs and cats adds further requirements to this base: species-specific nutrition, formulation fidelity, pet food hazards, a higher level of measurement precision, and coordination with veterinary nutrition expertise [2,3,16,29].

The veterinary literature defines the other side of the professional boundary clearly. Nutritional assessment, individualized nutritional recommendation, therapeutic nutrition and clinical monitoring fall within the responsibility of the veterinary healthcare team [2,30]. Support from a veterinary nutrition specialist is recommended for the formulation and evaluation of home-prepared diets [3]. This structure makes it possible to build the chef’s area of specialization around converting defined requirements into safe and consistent food production.

The literatures on companion animal nutrition, chef competence and pet-inclusive hospitality form three separate lines of knowledge. The first addresses nutritional adequacy, safety and veterinary responsibility; the second explains professional kitchen performance; the third describes the restaurant experience and behavioral responses of pet-owning customers. At the intersection of these three lines, a clear and traceable professional competency model is missing for the question of how companion animal feeding requirements translate into additional chef competencies in a professional kitchen. This study addresses that gap by defining the culinary implementation layer between companion animal domain requirements and established chef competencies. The approach of adding domain-specific requirements to existing chef competencies as supplementary competencies has also been applied in the Halal Competency Framework developed for culinary professionals [31]. That approach shows how the core competencies of professional cheffing can be preserved while new requirements arising from a particular service or knowledge domain are structured as an additional competency layer. Pet Chef specialization carries the same competency development logic into the companion animal feeding context.

In this study, Pet Chef is treated as a companion-animal-specific supplementary competence layer

added to established professional chef competencies. The term Pet Chef is used here as a proposed service-domain specialization label built on a professional cheffing foundation. Authority over clinical assessment, therapeutic nutrition and individualized diet formulation remains with veterinary medicine and veterinary nutrition. Culinary Translation refers to the process of converting requirements arising in veterinary nutrition into culinary decisions, processes and competencies that a chef can apply within professional limits. The research question is as follows: in addition to established culinary competencies, which supplementary competency domains does a professional chef need in order to produce safe, appropriate and consistent food for dogs and cats, and how can these domains be structured in relation to the boundary of veterinary expertise?

This study offers a contribution at three levels. At the theoretical level, it explains how knowledge from the companion animal nutrition domain can be converted into professional chef competencies through the Culinary Translation mechanism, and it positions Pet Chef within the scope of service-domain-centered culinary specialization. At the methodological level, it combines established chef competencies, companion animal domain requirements and culinary-interface evidence in a three-corpus design, and develops a traceable competency development approach along the chain Domain Requirement → Culinary Relevance → Existing Chef Competence → Competency Gap → Culinary Translation → Supplementary Competence → Professional Boundary. At the professional and applied level, it produces a nine-domain Pet Chef Supplementary Competency Framework together with a professional boundary map, and presents these outputs as a usable basis for training programs, specialization and certification work, job analysis, and the developing practices of pet-inclusive restaurants and customized foodservice. The study thereby makes the culinary implementation layer between established chef professionalism and companion animal feeding requirements visible in both conceptual and operational terms.

2. Method

The research follows a conceptual-analytical design that combines a structured evidence review informed by the integrative review approach with a domain-to-culinary competency mapping approach developed by the author [32,33]. The design focuses on identifying culinary-actionable requirements in the canine and feline nutrition literature and on analyzing how those requirements relate to existing chef competencies.

The analysis was built on three corpora. Corpus A represented the field of established chef competencies and consisted of sources on technical culinary skills, recipe execution, food safety, ingredient handling, kitchen management, communication and professional competence [25–28] (n=4). Corpus B represented companion animal domain requirements and included sources on canine and feline nutrition, home-prepared diets, nutritional adequacy, recipe adherence, veterinary nutrition guidance and professional responsibility [1–3,11–15,30] (n=9). Corpus C represented culinary-interface evidence and was composed of studies on weighing precision, processing effects, palatability, raw-food safety, storage, quality assurance, traceability, regulatory process control and pet-inclusive foodservice [6–8,16–24,29,34] (n=14). The core analytical corpus used for competency derivation therefore consisted of 27 sources. Conceptual, methodological and contextual sources were used as supporting literature outside the analytical corpus.

Source collection was carried out through question-driven targeted searches. Google Scholar and semantic scholar were used as the discovery platform. The searches were structured around analytical questions covering cooking and processing effects, ingredient weighing and portion precision, palatability and voluntary intake, texture and serving temperature, food handling and storage, quality assurance and traceability, recipe deviation, veterinary professional responsibility, culinary implementation responsibility, existing professional roles, and pet-friendly restaurant practices. Sources on chef competencies were additionally assessed through the concepts of professional chef competency, culinary competency model, and cooking or food skill framework.

Four criteria guided selection: a direct relationship between the source and canine and feline nutrition, professional culinary competence or pet-inclusive foodservice; the possibility of matching the finding with a concrete culinary decision or production process; a contribution to role differentiation in terms of professional boundary; and the status of the source as peer-reviewed work, a professional guideline, a core academic text in the field, or an institutional source that documents current industry practice directly. Restaurant web pages were used only as examples of current practice, and peer-reviewed and professional sources were given priority in the scientific justification of the competencies.

The unit of analysis was the culinary-actionable evidence proposition identified within each source rather than the source itself. When a single source

contained more than one domain requirement or culinary-interface relationship, each proposition was coded as a separate analytical record. Every analytical record was assessed along the chain Domain Requirement → Culinary Relevance → Existing Chef Competence → Competency Gap → Culinary Translation → Supplementary Competence → Professional Boundary.

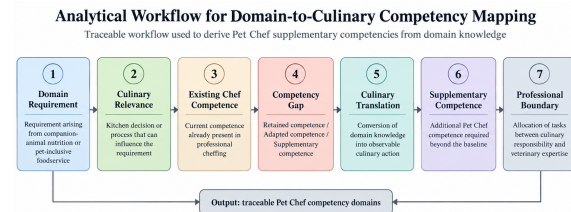


Figure 1. Analytical workflow

Figure 1 summarizes this analytical workflow and shows how domain requirements were progressively translated into supplementary culinary competencies while maintaining the defined professional boundary.

Domain Requirement expressed the condition to be met for a dog or cat in terms of nutrition, safety, acceptance or production. Culinary Relevance established the relationship between that condition and a culinary decision such as ingredient selection, weighing, preparation, processing, portioning, storage, service or quality control.

At the Existing Chef Competence stage, the overlap with general chef competencies was assessed. The approach of comparing existing professional competencies with domain-specific requirements in order to identify the competency gap is consistent with the competency-gap logic used in earlier competency framework work for culinary professionals [31]. Competency Gap was coded in three classes: retained competence, adapted competence and supplementary competence. The Culinary Translation stage converted domain knowledge into an observable chef action. At the Professional Boundary stage, clinical assessment, diet formulation and therapeutic decision tasks were located within the relevant veterinary field of expertise, while culinary execution tasks were assessed within the chef's field.

Similar culinary actions produced at the Culinary Translation stage were first clustered by functional proximity. Records directed at the same production purpose, control point or area of professional responsibility were combined under a shared competency domain. Each domain was named so as to represent the core professional function repeated within the cluster. For a domain to enter the framework, a clear link had to exist between the domain requirement and an observable culinary action, and that link had to be supported in a

traceable way by domain or culinary-interface evidence. Two decision rules were applied in carrying a mapping into the Pet Chef framework: the domain requirement had to be open to influence by the chef within the culinary process or at the kitchen-service interface, and the proposed action had to remain within the defined professional boundary. A competency domain was admitted to the framework when a clear relationship existed between a companion animal requirement and a culinary action and that relationship was supported in a traceable way by domain or interface literature.

3. Results

3.1. Existing Chef Competencies and the Need for Supplementary Expertise

Corpus A showed that professional cheffing offers a strong starting base for Pet Chef specialization. Technical production, recipe execution, ingredient preparation, food safety, kitchen organization and managerial competence are recurring domains in chef professionalism [26–28]. The Cook-Ed matrix also defines kitchen safety, food safety, general food skills and general cooking skills in a systematic way [25]. The analysis identified three types of competency relationship. Retained competences covered directly transferable competencies such as basic equipment safety, general sanitation and workflow. Adapted competences involved the application of existing culinary competencies such as recipe execution, cooking, portioning, storage and sensory-oriented preparation under pet-specific constraints. Supplementary competences covered the knowledge and responsibilities added to the standard chef profile, including canine and feline nutrition literacy, formulation fidelity, species-specific palatability knowledge and interprofessional veterinary collaboration. The nine-domain Pet Chef supplementary competency layer was derived from the requirements coded as adapted competence and supplementary competence. Competencies coded as retained competence, such as basic equipment safety, general sanitation and standard kitchen workflow, were assessed within the professional chef baseline and were not counted again among the supplementary domains.

The subsections below present the nine competency domains in sequence, and the analytical matrix (Table 1) integrates the relationships among them.

3.2. Companion Animal Nutrition Literacy

Companion Animal Nutrition Literacy forms the basic knowledge layer of Pet Chef expertise. The nutrient requirements of dogs and cats vary with species, life stage, physiological condition and feeding plan [1–3]. For the Pet Chef, this competency confers no authority to conduct independent nutritional assessment or to develop

formulations. Its scope is limited to working knowledge at a level that allows the chef to understand the nutritional requirements set by a veterinarian or veterinary nutrition specialist, to grasp the function of the ingredients and supplements used within the formulation, and to preserve the nutritional intent of the culinary application. Corpus B sources consistently emphasize requirement differences linked to species and life stage, and these differences must be carried into production decisions [1–3]. This knowledge layer provides the conceptual basis for applying the competencies of recipe fidelity, ingredient selection, process management and portioning.

3.3. Formulation Interpretation and Recipe Fidelity

A direct relationship was identified between nutritional adequacy and culinary execution. Evaluations of home-prepared recipes show that a substantial proportion of recipes contain nutrient inadequacies and ambiguous preparation instructions [11–14]. Oliveira et al. [15] showed that omitting, substituting or changing the quantity of an ingredient can alter the final nutrient composition. This evidence places the formulation set by a nutrition specialist in the position of a production specification, which the chef applies with the correct ingredients, quantities and sequence of operations. Where a change to the formulation becomes necessary, the task on the kitchen side is to record the change and refer it to the relevant specialist for approval. This competency restructures the recipe execution skill of professional cheffing in the companion animal feeding context through a higher standard of formulation fidelity and a principle of controlled modification.

3.4. Ingredient Suitability and Nutritional Function

The Ingredient Suitability and Nutritional Function competency covers an accurate understanding of the identity, intended use and nutritional function of the ingredients specified in the formulation. Recipe fidelity governs adherence to the formulation as a whole, while this competency governs the identity and nutritional role of the individual components within it. Research on home-prepared diets shows that ingredient omission, substitution and quantity changes can alter the final nutrient composition [15], and that the macronutrient and mineral concentrations of such diets vary widely [13]. Ingredient composition therefore stands among the determinants of the nutritional outcome. The Pet Chef selects and prepares the protein sources, carbohydrate components, fats, mineral and vitamin supplements and other ingredients of the approved formulation according to the stated specification.

Where a specified ingredient is unavailable or has to be changed, the decision is not taken in the kitchen alone, and the change is reported to the relevant nutrition authority. This competency extends the chef's existing skill in ingredient knowledge with knowledge of species-specific nutritional function and the consequences of substitution.

3.5. Nutrient-Aware Culinary Processing

Culinary operations produce both nutritional and hygienic outcomes in pet food production. Thermal processing provides pathogen control, and it can also create changes in amino acid availability, protein quality and digestibility depending on process conditions [20]. Fresh pet food research shows that processing intensity and ingredient characteristics act together on the final nutritional outcome [21]. General cooking competence therefore has to be adapted in the Pet Chef context into nutrient-aware process control.

3.6. Pet-Food Safety and Hazard Control

Food-safety evidence is strong in the area of raw and minimally processed diets. Davies et al. [16] set out the microbiological risks associated with raw diets, and Morelli et al. [17] showed that bacterial contamination increased at higher refrigeration temperatures. For the Pet Chef, these findings require separation of raw materials, safe thawing, validated temperature control, sanitation, surface and utensil management, rapid cooling and controlled storage. Hazard analysis and preventive control requirements for animal food production are defined in the 21 CFR Part 507 regulation of the U.S. Food and Drug Administration (FDA) [34]. That regulation is used within the framework as a jurisdiction-specific regulatory benchmark illustrating a hazard-control approach to animal food production; it is not presented as a universal legal obligation. In Pet Chef practice, regulatory requirements must be assessed separately according to the country of operation and the production model. This competency extends general kitchen hygiene knowledge with the zoonotic transfer, raw material handling and storage risks specific to the pet food context [16,17,34].

3.7. Precision Weighing, Portioning and Batch Production

Precise measurement is the operational component of formulation fidelity. Boothby et al. [29] showed that measuring ingredient quantities by weight in cooked homemade dog diets provided higher precision and accuracy than volumetric measurement across many nutritional parameters. This result carries gram-scale weighing, supplement dosing, portion control and batch consistency into a distinct competency domain within the Pet Chef framework. In formulations that use supplements in

small quantities, the effect of the measurement method on the nutritional outcome becomes pronounced, and the use of a calibrated digital scale becomes part of the kitchen routine [29]. Setting the portion amount remains within the scope of the feeding plan, while the task on the kitchen side is to meet the specified amount consistently throughout production and service.

3.8. Palatability-Oriented Culinary Preparation

Palatability is a product-performance attribute that affects the feasibility of the nutritional plan within companion animal feeding. In dogs and cats, aroma, texture, moisture, ingredient characteristics and processing parameters are related to acceptance and consumption behavior [23]. Calderón et al. [22] address the relationship between sensory characteristics and animal response in pet food palatability assessment in a systematic way. Eyre et al. [24] showed that the serving temperature of wet food can alter preference in aging cats. This evidence supports combining the chef's existing skills in texture, moisture, temperature and product-form management with pet-specific palatability knowledge.

3.9. Quality Assurance, Traceability and Process Control

The Quality Assurance, Traceability and Process Control competency allows the produced meal to be reproduced consistently under the same formulation and process conditions. Pet food recall data show that, alongside biological and chemical contamination, problems arising from formulation and production control also carry weight for quality assurance [18]. The pet food production literature supports standardized production procedures, raw material control, lot tracking, recordkeeping and process verification [19,34]. In the Pet Chef context, this competency translates into practices such as standard recipe records, supplier and lot identification, weighing records, batch documentation, deviation recording, storage information and corrective-action procedures. Traceability of the formulation and of the production process thereby becomes part of professional performance alongside safe production.

3.10. Interprofessional Culinary Practice

Interprofessional Culinary Practice expresses the competency of managing the working interface between companion animal nutrition expertise and professional culinary practice. Veterinary guidelines locate nutritional assessment, individualized nutritional recommendation, therapeutic diet formulation and clinical monitoring within the area of responsibility of the veterinary healthcare team [2,3,30]. Within this boundary, the Pet Chef converts the nutritional brief into a production plan,

applies the specified ingredient, quantity, process and portion requirements, records deviations that arise during production, and reports them to the relevant specialist where necessary. Conveying kitchen observations on acceptance, tolerance and production feasibility to the relevant professionals forms the feedback dimension of this competency. Interprofessional practice thereby structures the coordination between culinary responsibility and veterinary expertise and keeps the Pet Chef's area of authority clearly defined.

3.11. Pet-Inclusive Foodservice: The Application Context of the Specialization

The hospitality literature widens the potential application area of Pet Chef competencies. Pet-friendly restaurant value has been found to be associated with the future purchase intentions of pet-owning customers and their willingness to pay a premium price [6]. Within the pet-inclusive restaurant experience, service and arrangement elements affect emotional response [7]. Dog-specific menu offerings can have a positive effect on dining intention, word of mouth and spending [8]. These results support the view that food preparation and service directed at companion animals constitutes an observable service-domain context within professional foodservice.

This body of evidence was assessed in order to establish the level of service-domain relevance of the developed competencies in a professional hospitality setting. It was not admitted to the framework as an independent competency domain.

3.12. The Analytical Competency Matrix

Table 1 brings the nine competency domains together along the analytical chain and shows, for each domain, the existing chef competence, the domain-specific competency gap, the culinary translation and the professional boundary.

Table 1. Pet Chef Domain to Culinary Competency Analytical Matrix

Domain requirement	Existing chef competence	Domain-specific competency gap	Culinary translation	Pet Chef supplementary competence	Professional boundary / key evidence
Species- and life-stage-	General food and nutriti	Canine, feline nutrient needs and	Accurate interpretation	Companion Animal Nutriti	Nutritional assessment veterinarian

appropriate nutrition	on knowledge	metabolic differences	of the nutritional specification provided by the specialist	on Literacy	ary domain [1,2,30]
Complete and balanced formulation	Recipe execution	Ingredient purpose, supplement criticality and pet-specific formulation constraints	Execution of the formulation according to ingredient identity, amount and supplement specifications	Formulation Interpretation and Recipe Fidelity	Formulation veterinary nutrition domain [3,12,14]
Nutritionally appropriate	Ingredient selection and	Species-specific nutrition	Selection of approved	Ingredient Suitability and	Formula changes require

ingredients	handling	on functional and substitution consequences	ingredients by function and specification; reporting of changes to the authorized specialist	Nutritional Function	nutrition authority [13,15]
Processing that preserves safety and nutritional intent	Cooking and processing	Pet-specific nutrient sensitivity and processing effects	Application of time, temperature and method within formulation constraints	Nutrient-Aware Culinary Processing	Processing execution culinary domain [20,21]
Control of biological	General food safety	Raw-pet-food zoono	Separation, thawing	Pet-Food Safety and	Culinary production

and cross-contamination hazards	and sanitation	tic exposure and pet-specific handling risks	ng, sanitation, temperature and storage controls	Hazard Control	responsibility [16,17]
Accurate nutrient delivery per portion and batch	Measuring, portioning and standard recipe use	Higher precision requirement for ingredient and supplement quantities	Digital weighing, supplementation, standardizing, standardized batch and portion control	Precision Weighing, Portioning and Batch Production	Feeding amount set by nutrition/veterinary plan [29]
Reliable acceptance and voluntary intake	Sensory and texture management	Species-specific palatability drivers	Permitted texture, moisture, temperature, aroma and	Palatability-Oriented Culinary Preparation	Adjustments within formulation constraints [22–24]

			food-form adjustments		
Consistent and traceable production	Kitchen management and quality control	Pet-food-specific documentation, lot control and preventive systems	Standardized recipes, records, supplier/lot traceability and deviation control	Quality Assurance, Traceability and Process Control	Requirements vary by jurisdiction [18,19]
Coordinated implementation of individualized requirements	Communication and teamwork	Veterinary terminology, referral threshold and clinical boundary	Conversion of the nutritional brief into a kitchen production plan; provision of deviation	Interprofessional Culinary Practice	Assessment, therapeutic decisions and monitoring veterinary domain [2,3,30]

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3.13. The Pet Chef Supplementary Competency Framework and the Professional Boundary

The analytical matrix showed that the nine competency domains form an interrelated structure. The first three domains establish the basis of knowledge and formulation interpretation. Nutrient-Aware Culinary Processing and Pet-Food Safety and Hazard Control carry production technique and risk control. Precision Weighing, Portioning and Batch Production together with Quality Assurance, Traceability and Process Control secure consistency and traceability. Palatability-Oriented Culinary Preparation manages the acceptability of the product to the animal. Interprofessional Culinary Practice connects all domains to the veterinary nutrition brief. Pet-inclusive restaurant service was assessed as one of the current hospitality contexts in which these nine competencies can be applied.

Layers were identified in the professional boundary map. Veterinary and veterinary nutrition expertise carries nutritional assessment, diagnosis-related nutrition decisions, individualized or therapeutic formulation, nutrient targets and clinical monitoring [2,3,30]. The shared interface covers the formulation brief, permitted substitutions, processing constraints, feeding instructions, tolerance and acceptance feedback, and deviation communication. The Pet Chef domain consists of ingredient receiving and verification, precise weighing, recipe execution, culinary processing, hygiene, portioning, packaging, storage, production records and approved palatability adjustments. Figure 2 summarizes structure within the wider logic of chef specialization.

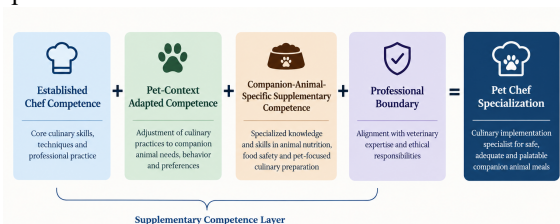


Figure 2. Pet Chef Specialization Formula

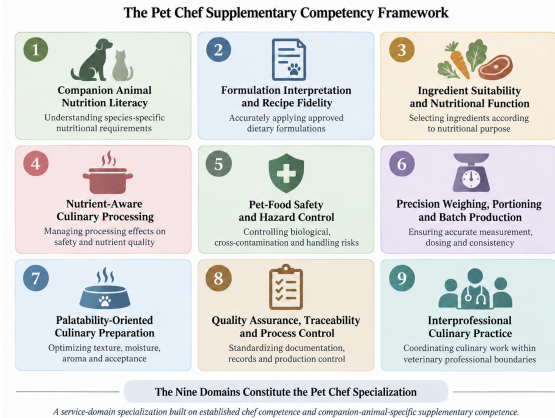


Figure 3. The structure of chef specialization

4. Discussion

This study analyzed the requirements of professional food preparation for dogs and cats through chef competencies and developed a nine-domain Pet Chef supplementary competency framework. The core meaning of the findings is that the professional contribution in companion animal feeding arises from converting domain knowledge into concrete culinary decisions. A nutrient target in a formulation becomes, for the chef, a set of production decisions covering ingredient identity, gram-scale weighing, processing condition, supplement addition and portion accuracy. This conversion forms the basis of the Culinary Translation mechanism.

The first contribution of the framework is that it makes the principle of supplementarity visible. Professional chefs carry a strong set of core competencies in food safety, recipe execution, cooking, ingredient handling, sensory management and kitchen organization [25–28]. Pet Chef specialization widens that base with companion-animal-specific constraints. In training design, nutrition literacy, formulation fidelity, pet food hazard control, precision production and veterinary collaboration can be treated as high-priority modules.

The second contribution is a reinterpretation of recipe fidelity from the standpoint of culinary professionalism. Creativity and adaptability are treated in the professional cheffing literature as components of professional competence [28]. In the context of companion animal diet preparation, changes to ingredients or quantities can directly affect nutrient balance. Research on home-prepared diets has regularly reported cases of inadequacy, unclear quantities, supplement omission and owner modification [12–15]. The same evidence also makes ingredient selection a professional decision area: knowing the function of a protein source or supplement within the formulation allows unsuitable substitutions to be prevented at the production stage

[13,15]. For the Pet Chef, professional mastery should be defined through the balance between controlled adaptation and formulation fidelity.

The third contribution appears in the area of precision production. Boothby et al. [29] showed that weight-based measurement can provide higher accuracy and consistency in homemade dog diets. The use of a calibrated digital scale, the controlled addition of supplement quantities, batch standardization and portion verification can be defined as assessable Pet Chef skills. In the development of proficiency levels, this domain converts directly into performance criteria.

Food safety competence is also rescoped within the pet food context. Professional chefs hold general food hygiene knowledge, and raw and minimally processed pet foods create additional risks in terms of zoonotic transfer, defrosting, separation and storage [16,17]. In Pet Chef training, hazard control should cover in-kitchen sanitation, final product storage, packaging, client instructions and traceability processes together. The process control and traceability principles emphasized by Leiva et al. [19] and DeBeer et al. [18] can be translated into scale-appropriate procedures for small fresh pet food operations. Recordkeeping, lot identification and deviation management form the traceable core of quality assurance at that scale as well [18,19,34].

The palatability domain creates a distinctive intersection between classical chef sensory competence and companion animal behavior. Acceptance and voluntary intake in dogs and cats are affected by the sensory and physical properties of the product [22,23]. Pet Chef competence should therefore cover working knowledge of species-specific palatability drivers together with the management of culinary-controllable variables. Texture, moisture, particle structure, aroma and serving temperature form the application area of this knowledge. The temperature preference shown by Eyre et al. [24] in aging cats is a direct example of this approach.

The professional boundary is central to the credibility of the framework. Veterinary guidelines locate nutritional assessment and individualized recommendation processes within the veterinary healthcare team [2,30]. The emphasis on specialist formulation for home-prepared and therapeutic diets reinforces this boundary [3]. Maintaining professional boundaries is also bound up with professional ethics and responsibility. The position of ethical reasoning, responsibility and professional values among the core components of chef professionalism [35] provides a professional basis for the Pet Chef to recognize the limits of their own authority, to refer decisions requiring veterinary

assessment to the relevant professional, and to preserve approved nutritional specifications throughout the production process.

Within this boundary, the Pet Chef can be positioned as a culinary implementation specialist. The role covers converting the formulation set by the veterinary nutrition specialist into a production plan, recording ingredient and process deviations, managing safe preparation and storage, and feeding acceptance and production problems back to the relevant specialist. This structure brings the principles of interprofessional complementarity and ethical professional responsibility together within the same professional boundary mechanism.

The growing pet-friendly restaurant sector constitutes a visible hospitality application of the framework. Recent studies show that the dog-friendly dining experience is associated with consumer value, satisfaction and behavioral intentions [6–8]. Industry practice includes dedicated dog menus, separately prepared meals, special presentation, celebration cakes and chef-led tasting experiences [9,10]. In this setting, kitchen personnel can encounter companion animals as a differentiated service domain. To explain the culinary competence requirement of these practices, the Pet Chef framework brings nutritional appropriateness, safety, consistency, palatability and professional boundary together in a single structure.

The theoretical contribution of the study is the development of a mechanism that explains chef specialization through the service domain. Hospitality research has shown that the nutrition, safety and experience requirements of a particular customer group can shape restaurant choice [36]. Research on gastronomic encounters with unfamiliar foods further shows that familiarity, perceived risk, sensory expectations and presentation strategies can shape acceptance [37]. Gastronomy research also indicates that experience-related variables can contribute to the relationship between attitudes toward gastronomy tourism and behavioral intentions [38]. These findings provide a broader gastronomic basis for understanding how differentiated foodservice experiences can generate behavioral responses. The Pet Chef framework carries the same service-domain logic into the companion animal feeding field at the level of culinary competence, and it shows how a layer of specialization can form when scientific requirements arising in a specific service area are translated into kitchen practice. The unit of analysis is established in the field of chef professionalism and culinary competence. Companion animal nutrition acts as the domain knowledge source. Culinary Translation converts that input into culinary action, and

supplementary competence defines the resulting layer of specialization.

The nine competency domains developed here can provide a starting framework for the modular structure of a future professional development program. Vocational tourism education contributes to the development of qualified human resources and occupational competencies required by the sector [39]. Domain-specific culinary specialization extends this professional-development logic by translating emerging service requirements into explicit competency areas. Recent tourism workforce research also identifies the shortage of qualified personnel as a prominent issue articulated by employers [40]. Clearly defined specialization frameworks can contribute to role clarity by specifying the knowledge, skills and responsibilities associated with emerging service areas. Contemporary career research using the Kaleidoscope Career Model associates authenticity, balance and challenge with workplace outcomes including motivation and performance [41]. Pet Chef specialization can therefore be positioned as a structured culinary career-development pathway through which professional chefs acquire domain-specific expertise and expanded professional responsibilities. In such a program, canine and feline nutrition literacy can be addressed at a foundational level, while formulation interpretation, nutrient-aware processing, hazard control, precision production, palatability management, quality assurance and interprofessional practice can be addressed with an applied emphasis. Research in food-and-beverage businesses has shown that nomophobia-related employee behaviors can be associated with workplace productivity [42]. This relationship supports the inclusion of observable workplace performance in the validation of specialized culinary competencies. Pet Chef assessment can combine written knowledge tests with observable performance scenarios covering recipe execution, weighing accuracy, sanitation performance, batch documentation and deviation management.

The limitations of the study shape how the framework should be used. The search was built on a question-driven and targeted discovery strategy, and database coverage was centered on Google Scholar. Evidence types vary across veterinary guidelines, empirical nutrition studies, food-safety research, processing literature, chef-competency studies and hospitality research. Some findings come from commercial pet food manufacturing settings and require adaptation to small-scale culinary production. The framework was developed through document analysis. Expert validation with

veterinary nutrition specialists, chefs, food-safety experts and fresh pet food practitioners should form the next research step. The focus on dogs and cats provides analytical control, and other companion species require separate domain analysis.

Three stages of validation are proposed for future research. In the first stage, a multidisciplinary Delphi panel can assess the content validity of the nine competency domains and their sub-competencies. In the second stage, job and task analysis in fresh pet food kitchens, veterinary nutrition services, pet-friendly restaurants and customized diet operations can examine actual workflows. In the third stage, competency levels and performance indicators can be developed to build tools for training, certification and professional assessment.

Future research can also examine the adoption of Pet Chef services by animal owners. Acceptance of novel and unfamiliar foods in gastronomic contexts has been shown to relate to familiarity, perceived risk, sensory expectations and presentation strategies [37]. The role of these variables in consumer acceptance of pet-inclusive foodservice and customized companion animal menus can be investigated further.

5. Conclusion

This study grouped in nine domains the supplementary competencies a professional chef needs in order to prepare safe, appropriate and consistent food for dogs and cats: companion animal nutrition literacy; formulation interpretation and recipe fidelity; ingredient suitability and nutritional function; nutrient-aware culinary processing; pet-food safety and hazard control; precision weighing, portioning and batch production; palatability-oriented culinary preparation; quality assurance, traceability and process control; and interprofessional culinary practice.

The findings show that Pet Chef specialization is built on existing chef competencies and that companion animal domain knowledge is converted into culinary practice through Culinary Translation. Nutritional assessment, individualized or therapeutic formulation and clinical monitoring remain within the veterinary field of expertise, while the Pet Chef takes responsibility for the accurate implementation of approved requirements in ingredient handling, weighing, processing, safety, portioning, palatability management, storage and quality control. The growth of pet-friendly foodservice and dog-specific menu practices shows that these competencies can also find a concrete application area in restaurant and hospitality settings. Expert validation, workplace task analysis and proficiency-level

research are needed before the framework can become a professional standard.

These conclusions give concrete form to the three levels of contribution in the study. At the theoretical level, the study explains how companion animal nutrition knowledge is articulated with chef professionalism through Culinary Translation and positions Pet Chef within service-domain-centered culinary specialization. At the methodological level, the chain Domain Requirement → Culinary Relevance → Existing Chef Competence → Competency Gap → Culinary Translation → Supplementary Competence → Professional Boundary offers an applicable analytical model for developing traceable professional competencies from domain knowledge. At the professional and applied level, the nine-domain Pet Chef Supplementary Competency Framework and the professional boundary map form a structured basis for professional development, culinary career specialization, training, certification, job analysis and pet-inclusive foodservice practice. The study thereby establishes the connection between companion animal feeding requirements and professional culinary practice through an explanatory mechanism, an analytical method and an applicable competency output.

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