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Journal Pre-proof

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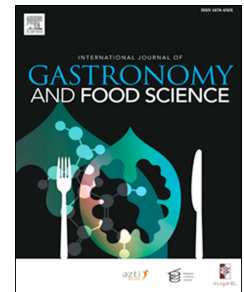
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OPERATIONALISING SUSTAINABILITY IN PROFESSIONAL KITCHENS: THE INTERPLAY OF CHEF COMPETENCIES, ENVIRONMENTAL VALUES AND HUMAN RESOURCE MANAGEMENT STRATEGIES

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ABSTRACT

Food waste reduction and lowering greenhouse gas emissions (GHGE) of diets are key focus areas of the food systems transition. Inspired by the ecological systems theory, this exploratory study assesses how chefs' competencies, environmental values, human resource management (HRM) practices interact in a microsystem to reduce food waste and GHGE of food offers. A participant selection framework was developed to explore four perspectives: kitchen, sustainability, industry support and catering education. Twenty-three stakeholders, 9 (39%) chefs, 6 (26%) industry stakeholders, 5 (22%) chef educators and 3 (13%) sustainability professionals in the sector were interviewed. While the study set out to examine the role of HRM in shaping environmental kitchen practices, the findings suggest that HRM does not directly influence behaviours related to food waste and GHGE reduction. Instead, kitchen leadership, as part of the microsystem, where daily interactions and operational decisions occur, emerges as a potentially more influential factor. Within this immediate environment, daily interactions and skill application, such as culinary techniques, product knowledge, logistics, creativity, and innovation, play a central role in shaping sustainable practices. These competencies not only support operational efficiency but also foster entrepreneurial thinking. While broader societal discourse reflects a macrosystem shift in environmental attitudes, the study stresses the need to translate this awareness into applied skills within the microsystem, where behaviour change is most effectively enacted.

KEYWORDS

Corporate Social Responsibility (CSR), Environmental sustainability, Culinary skills, Menu engineering, Environmental values, Hospitality and Food Service (HaFS)

HIGHLIGHTS

1. Chefs drive food waste and GHGE cuts via menu design and leadership.
2. Skills like logistics, creativity, and food knowledge are key.
3. HRM rarely supports environmental goals in kitchens.
4. Environmental attitudes are rising, but skills are lagging.
5. Menu planning is a powerful tool for sustainability

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Introduction

There are emerging sustainable practices, such as food waste, energy, and water management, in the Hospitality and Food Service (HaFS) sector due to increased environmental awareness (Robinson *et al.*, 2024). Academics and activists are calling for food systems transformation to reduce environmental impacts (Filimonau *et al.*, 2023; Seo *et al.*, 2023). This is because how food is produced, transported, processed, consumed, and disposed of has the potential to increase or decrease greenhouse gas emissions (GHGE) in the food system (Willett *et al.*, 2019). Two significant components of possible HaFS GHGE reductions are decreasing and preventing food waste, as well as ingredient selection and food offer change. A 29-70% GHGE reduction potential for a global dietary shift in line with current healthy eating guidelines was found by Springmann *et al.* (Springmann *et al.*, 2016). Speck *et al.* (2022) estimated recipe reformulation and food offer change could reduce GHGE by 44% in the German catering sector.

Food waste has been associated with 4.9 MtCO₂eq. emissions in the German catering industry (Meier *et al.*, 2021). Total global food waste in the HaFS Industry is estimated to be 244 Mt (United Nations Environment Programme, 2021) per year, with 19% of this avoidable (FAO, 2019). Data for HaFS food waste has been described as difficult to model because current data sources are limited due to a lack of consistent and reliable data sources (WRAP, 2023a). However, total food waste in the UK was estimated to be 10.7 Mt in 2021, of which 10% is estimated to be associated with HaFS (Malik *et al.*, 2024). Total UK food waste accounts for around 36 MtCO₂e (WRAP, 2021). Thus, research into food waste reduction in HaFS (Filimonau *et al.*, 2017, 2023; Filimonau, Sezerel, *et al.*, 2024; Ko and Lu, 2021) and on reducing GHGE in food businesses through food offer change (Guimarães *et al.*, 2024) is an increasing area of research.

Nevertheless, limited research has investigated their intersection: how chefs can jointly change the food offers to prevent food waste and reduce GHGE in HaFS. This is surprising considering their synergetic impact on the environment and potential coherence of their solutions are connected. This research project explores food waste and GHGE of food as interconnected environmental entities in a broader food system. Both can be influenced by food offers and menu design (Filimonau *et al.*, 2017).

The largest contributor of GHGE and tonnage of food waste in the UK is households; still, reducing food waste in the hospitality sector is seen as essential in reducing the overall GHGE associated with the sector (Jeswani *et al.*, 2021; WRAP, 2023b). A recent UK food waste update states HaFS lags progress in other sectors (WRAP, 2023a). HaFS needs to reduce food waste by 58% by 2030, equating to 8.7kg/person reductions to achieve the Courtauld targets (WRAP, 2023a).

In HaFS businesses such as institutional catering, private catering, restaurants or hotels, chefs contribute to the food offer and menu design (Coskun *et al.*, 2023). In recent years, sustainable menu design and recipe reformulation have become increasingly of interest to academics (Benvenuti *et al.*, 2016; Edalati *et al.*, 2021; Filimonau *et al.*, 2017; Filimonau and Krivcova, 2017; Oruçoğlu *et al.*, 2024; Speck *et al.*, 2022). Filimonau *et al.* (2017) argue that menu reformulation towards greater sustainability requires managers and consumers to understand the impact of GHGE; accordingly, chefs are not the only stakeholders responsible for shifting menus and food offers. Pollicino *et al.* (2024) reviewed 90 behavioural change techniques for the food service industry, which could help to transform menus towards healthy and sustainable food choices. Their findings are structured under six themes: product, presentation, people, promotion, price, and placement. Three of the recommended product techniques and the only recommended technique in the people themes are directly linked to menu curation and the role of chefs (4 out of 15 recommended techniques).

One of the four behavioural techniques linked to chefs recommended by Pollicino *et al.* (2024) suggests that chefs' training is a relevant strategy to drive forward other methods, such as those in the product change strategy's theme. Others have researched how kitchen brigades and chefs can support food waste reductions in HaFS, and there is evidence for multiple access points for practice change (Chawla *et al.*, 2022; Chawla and Lugosi, 2025; Filimonau, Sezerel, *et al.*, 2024). Some anchor the opportunity in innovation and creativity (Sezerel *et al.*, 2025) others in 'green' transformational leadership (Filimonau, Matute, *et al.*, 2024) as well as the environmental habitus of chefs (Bhaskara *et al.*, 2024). This suggests that exploring the specific context in which chefs make sense of food waste and GHGE reduction could help uncover opportunities for transformational change.

Zick *et al.* (2024) used Bronfenbrenner's ecological systems theory in a review of other research linked to GHGE and chefs to map systems' dimensions. In this conceptual exploration of previous studies, the chef's workplace was situated within the microsystems dimension. Filimonau *et al.* (Filimonau, Sezerel, *et al.*, 2024) previously employed Bronfenbrenner's work to assess how chefs develop practices to manage food waste. However, their study framed the microsystem around personal relationships with friends, family members, and schooling. This explorative study challenges their boundary and argues that the microsystem should encompass workplace relationships, as other academic evidence suggests that HaFS, particularly kitchen brigades, could be understood as communities of practice (de Oliveira *et al.*, 2024). The findings of Filimonau *et al.* (2024) enrich the understanding of habit formation, but the boundary setting does not consider the impact of shifts in personal relationships when individuals enter permanent workplaces and other meaningful communities away from work and family life (Pocock *et al.*, 2012), nor the effect of

key life events in adulthood, such as parenthood (Ashton *et al.*, 2024). Work habits may be underpinned by patterns formed in early development through family members, carers or schooling. Once individuals step into the workplace, the formation of habits may not only be reinforced, but new habits can also be established; these practice formations are contextual and gendered (Ashton *et al.*, 2024). Filimonau *et al.* (2024), however, highlight the importance of competencies and skills development of chefs. Thus, exploring chefs' skills and competency linked to food waste and GHGE reduction within the extended microsystem described by Zick *et al.* (2024) may further the understanding of actionable pathways for food systems transformation.

Methods

The following section outlines the theoretical development of the research question and previous research that links to it. This is followed by a description of the participant selection framework, the participant recruitment, and the analysis of the stakeholder interviews.

Theoretical development

This research is part of a broader project that explores chefs' experiences transitioning to food offers with reduced food waste and GHGE. In this study, the chefs' microsystems interactions were explicitly explored. Human Resource management (HRM) strategies are understood as curators of social norms in businesses (Tuan, 2022; Umrani *et al.*, 2022). Chefs' competencies and skills are their capacity to have the agency to act on the desired behaviours (reducing food waste and GHGE) (Filimonau *et al.*, 2023) and environmental values as the precursor for the beliefs about these behaviours (Haldorai *et al.*, 2024). Thus, the interactions between HRM, chefs' competencies, skills and environmental values are framed by Ajzen's Theory of Planned Behaviour (TPB) (Yuriev *et al.*, 2020).

Suhairom *et al.* (2019) outline six chef capacity dimensions: Technical, Non-Technical, Personal Quality, Self-Concept, Physical State, and Motives, highlighting the broad skillset required. These dimensions reflect a holistic view of competency, defined as a constellation of knowledge, skills, abilities, and personal attributes that enable superior performance. Skills are framed as both technical (e.g., culinary techniques, costing, hygiene) and non-technical (e.g., communication, leadership), while knowledge encompasses culinary science, nutrition, and cultural understanding (Suhairom *et al.*, 2019). Competencies are further distinguished as either threshold (basic job requirements) or differentiating (attributes of high performers), suggesting that both visible (skills and knowledge) and hidden (motives, self-concept) elements interact to shape professional effectiveness (Suhairom *et al.*, 2019). However, which of these support food waste and GHGE reduction remains unclear. Franchini *et al.* (2024) found culinary students had good nutrition knowledge but limited sustainability knowledge, which improved with training but remained lower than nutrition knowledge. Ko and Lu (2021)

developed a competence scale to assess how training improves hospitality students' food waste reduction skills. In this study, skills are seen as applied knowledge developed through iterative learning, aligning with Fischer's dynamic skills theory (Fischer, 2009), which describes a reciprocal relationship where knowledge and skills reinforce each other.

Chefs are one part of the wider staff within HaFS. Previous literature has focused on broader HRM practices and their link to the environmental management of service organisations (Tanova and Bayighomog, 2022), suggesting that modern HRM goes beyond traditional personal management and considers organisations' broader strategic goals, including ecological sustainability; this can be achieved through corporate social responsibility (CSR) roles and practices.

Stahl et al. (2020) highlight tensions between HRM and CSR, rooted in their differing stakeholder focuses; HRM prioritizes internal needs, while CSR targets external ones. Ma et al. [36] found CSR practices positively impacted food waste reduction in Chinese hotels. Zientara and Zamojska (2018) argue that strong environmental performance requires employee engagement fostered through a shared green organisational climate. However, there is limited research on how CSR and HRM practices in the HaFS sector influence chefs' pro-environmental behaviours and adoption of food waste and GHGE reduction practices.

Some studies suggest that green HRM (Suleman *et al.*, 2025) and green transformational leadership, specifically supervisor support, can increase pro-environmental behaviours such as better food waste management (Filimonau, Matute, *et al.*, 2024). Green organisational climate augments green transformational leadership (Filimonau, Matute, *et al.*, 2024). Thus, organisational culture and values play a role in reducing food waste and potentially GHGE reduction efforts. Strategic HRM could, therefore, help curate a green organisational climate. A systematic review also found limited published evidence linked to green human resource practices for restaurants and small and medium enterprises in Europe, and a potential gap in theoretical frames related to the TPB (Suleman *et al.*, 2025).

HRM can be framed as a set of organisational practices and managerial strategies that influence employee behaviour, particularly in relation to environmental sustainability, which may impact the chef's ability to engage with food waste and GHGE reduction practices (Zientara and Zamojska, 2018). For this study, these could include recruitment criteria, environmental training, internal communication focusing on food waste and GHGE, creating environmental policies, strategic CSR, such as setting environmental performance targets and incentivising practices, amongst others. This study is explorative therefore, the choice of HRM as a broad category was intentional to allow participants to share any such practices and strategies.

The exploration of environmental values in this study builds on the value theory of Bouman et al. (Bouman *et al.*, 2018), who associate a specific set of human values to climate action and Bergman (1998), who links human values to beliefs, behaviours and attitudes and argues beliefs, behaviours and attitudes are modulated by the context and social group of people. A systematic review of green HRM practices (Suleman *et al.*, 2025) suggests that personality traits and values have been implicated in environmental behaviours, linking HMR practices with environmental values.

Environmental values, chefs' competencies, skills, and HRM practices can be the focus of individual research assessments. Here, they are seen as interconnected by curating the microsystem in which food waste and GHGE reduction practices are carried out. Participants were required to help illuminate perspectives linked to sustainability, education in HaFS, kitchen, and industry perspectives.

This study is exploring the microsystem in which chefs are reducing food waste and GHGE alongside wider industry stakeholders. Despite being a key actor in HaFS, chefs' voices are rarely considered in academic research. Previous studies have ascribed this to limited access to chefs due to a lack of time and resources (Fooladi *et al.*, 2019). This project engaged with sector actors through 23 semi-structured interviews to scope UK HaFS views on 1) culinary skills, 2) environmental values of chefs and 3) HRM practices and strategies which are believed to shape the microsystem in which chefs operate.

The research questions of this study were:

RQ1: If and which competencies and skills of chefs are linked to the reduction of food waste and GHGE of food offers in catering, and if stakeholders observed those?

RQ2: To understand if and how HaFS stakeholders have observed the environmental values of chefs.

RQ3: Do HaFS stakeholders perceive HRM strategies as enabling environmental behaviours? How are HRM strategies influencing businesses' sustainability ambitions?

RQ4: Do HRM strategies, environmental values, and chef competencies and skills play a role in a microsystem involved in the creation of food offers with reduced food waste and GHGE?

Figure 1 visualises a proposed microsystems pathway, which will be explored with this study, linked to RQ4.

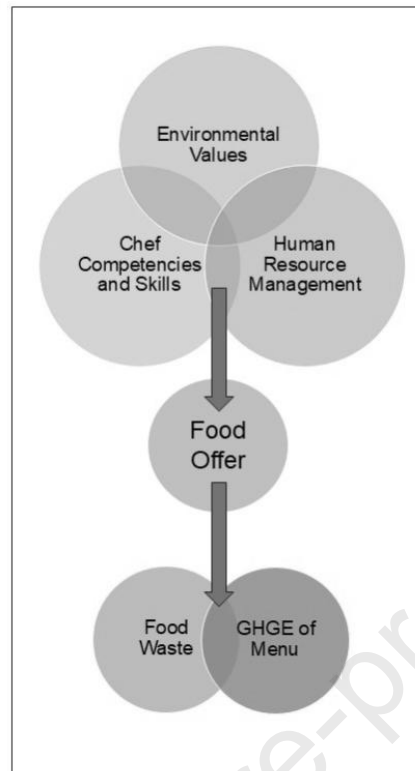


Figure 1 Simplified proposed microsystem interaction.

The literature indicates that chef competencies, skills, environmental values and HRM strategies and practices could influence chefs' food waste and GHGE reduction behaviours and work synergistically. The paper develops a theoretical, conceptual framework of the microsystem to explore the potential for these three factors to shape the creation of food offers and menu engineering, which could have implications for food waste and food-associated GHGE. It further describes a participant selection framework for interviewing stakeholders to explore the competencies and skills of chefs, environmental values, and HRM management strategies. The findings were reviewed against the recommendations of Yuriev et al. (2020) to understand whether the proposed model could be studied further with the TPB.

Participant selection framework

A framework for stakeholder selection was developed to gain insights into these four perspectives: kitchen, sustainability, HaFS education, and industry support. This approach was taken to reduce the potential of selection bias among non-respondents and respondents unaware of the themes relevant to this research (Karatsareas, 2022). Bronfenbrenner's ecological systems theory inspires the framework (Bronfenbrenner, 1995) and acknowledges that the positionality of each stakeholder leads to blind spots in their awareness of the microsystem's interactions. By consciously selecting stakeholders who are working with chefs from different angles, it is hoped these blind spots can be minimised beyond the underlying purposive sampling method.

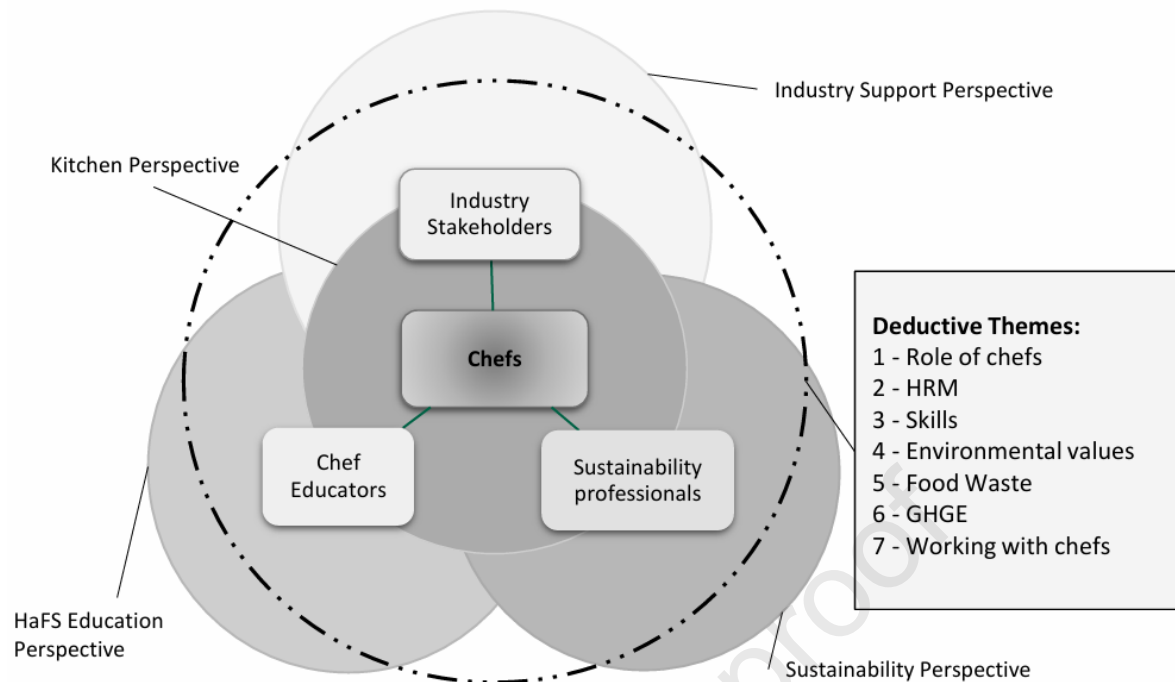
To ensure rich, relevant and diverse insights (Moser and Korstjens, 2018) participants were selected based on the following criteria:

- A. Professionals working in organisations (e.g. trade bodies, NGOs, consultancies) that engage with HaFS and chefs, established for at least two years.
- B. Sustainability professionals supporting chefs in reducing environmental impacts, with a minimum of two years' experience.
- C. Practising chefs with at least two years of professional experience.
- D. Chef educators or trainers with a minimum of two years in the role.
- E. All participants had to be over the age of 18.

A diverse representation of the industry was sought, with participants of varying gender expressions and cultural identities invited, because intersectionality may shape lived experiences and influence thematic framing (Netto et al., 2020; Rodriguez et al., 2024). To mitigate sampling bias, efforts were made to recruit participants of different gender identities, ethnic backgrounds, and sector tenure. Given persistent gender disparities in professional kitchens (Ashton *et al.*, 2024; Temizkan and Uslu, 2023), a target of 40–45% female representation was set.

Detailed participant selection criteria can be found in the Supplementary Information (SI), Appendix A.

Figure 2 is a simplified visualisation of the selection criteria. Additionally, age, gender, cultural identity, sector perspective and length in the industry were taken into consideration.



Interview development and implementation

Semi-structured interviews were chosen to explore the participants' ideas of culinary skills linked to a reduction of food waste and GHGE, environmental values and HMR. To the authors' knowledge, these three concepts have not previously been linked jointly with food waste and GHGE reduction in catering. Semi-structured interviews are a frequent method at early research stages to test assumptions and concepts (Kallio, Pietilä, *et al.*, 2016). Research on semi-structured interview methods suggests that most stakeholder interview processes reach saturation regarding key themes between 9 and 17 (Wutich *et al.*, 2024). For this research, the higher end of the range, ~20 interviews, was chosen as a minimum.

A semi-structured interview guide draft was created by the lead researcher, inspired by the five steps by Kallio *et al.* (2016) and considers the thought journey of the participants by building on each theme. This guide was critiqued by the research team, resulting in the guide in the SI, Appendix B. The opening set of questions allowed participants to describe their cultural identity, role, length of work experience and how they work in the sector with chefs. The questions were open-ended to allow for some ambiguity in responses and encourage sharing of broader narratives. The 23 semi-structured interviews were conducted in May and July 2023 by the principal researcher, with ethical approval from Brunel University (41620-LR-Apr/2023- 44713-3).

Participant recruitment

Participants were recruited purposively through personal and wider industry networks in the UK. A detailed description of the recruitment process and distribution of participants can be found in SI.

Data analysis

Interviews were recorded, transcribed with Microsoft Teams, and stored on the University Cloud drive for data security. The transcripts were reviewed and anonymised. Unique participant codes were given to each contributor. The names of businesses or people mentioned in the interview were anonymised. (If a named restaurant was mentioned, it would become a descriptive reference such as 'an Italian fine dining restaurant in London'. If a particular industry stakeholder was mentioned, it would become, for example, a male chef advocating for zero-waste restaurants, etc.). Transcripts were corrected, and duplicate words in a sentence were removed for clarity.

Descriptive data of the participant identifiers, such as length in industry, role, and gender identity, were taken from the conversation and recorded in an interview tracker. Transcripts were thematically analysed using NVivo 12.6.1.970.

Three rounds of coding were carried out, participant group by participant group, in chronological order. Categories for themes were created to analyse deductive and inductive themes (IT). Seven deductive themes (DT) or interview dimensions were defined in the interview guide (Appendix B): the role of chefs, environmental values, chefs' competencies, skills, HRM, food waste, GHGE, and working with chefs' best practices (see Table 1). IT were captured whilst reviewing the interviews. If participants spoke about competencies and skills in other interview segments, this was noted and added under DT skills. Thirty-one IT were created based on recurring topics from participants.

The culinary workforce competencies framework developed by Suhairom et al. (2019) was used to code skills and competencies mentioned by the participants thematically.

A full criteria list for reporting qualitative research (Tong *et al.*, 2007) can be found in the SI, Appendix E.

Results

This section presents the descriptive results followed by the qualitative results. The latter are presented in reference to the research questions.

Descriptive results

The researcher contacted 49 stakeholders. 23 (47%) interviews took place. The highest proportion of interview contributors were chefs, 9 (39%), followed by industry stakeholders, 6

(26%), educators, 5 (22%) and sustainability professionals, 3 (13%). A detailed breakdown of the descriptive results of this study can be found in the SI, Appendix C.

Qualitative results

Table 1 lists seven DTs. For each DT, IT extracted from the records of the interviews are recorded below. A total of 38 IT were extracted after two rounds of coding. Quotes from participants as examples for each of these 38 themes are presented in the SI, Appendix D. After quantitatively reviewing the 38 IT, seven were removed because they had received less than 20% of the responses for the respective DT. Thus, 31 IT are presented here from seven different interview dimensions. The following section summarises the key findings for each DT.

Table 1 Inductive themes (IT) extracted from each interview dimension. Specific quotes related to these themes can be found in the SI, Appendix D. N of participants using IT as framing.

Chefs' skills	Food Waste	Greenhouse Gas Emissions (GHGE)	Environmental values	Human Resource Management (HRM)	Role of Chefs	Working with chefs - best practice
Advanced skills: Analytical, communication, people management, and menu engineering are essential in later careers linked to food waste and GHGE. (N8 = 35%)	Increase of food prices - Drive action, not always understood as GHG impact. (N9 = 39%)	Linked to food offer planning - Management, procurement, menus, senior chefs responsible. (N11 = 48%)	Increased environmental knowledge and awareness in society and sector. (N13 = 57%)	Participants linked HRM with CSR as a strategic aim, predominantly through social responsibility for staff. (N12 = 52%)	Cook tasty food and transform ingredients. (N18 = 78%)	In-person - Technology is more common in senior roles, and in-person interaction is most effective. (N15 = 65%)
Skills and knowledge foundations vary - UK and international colleges, self-trained, no standard CPD for chefs, grew up with a link to farming or in cities. (N8 = 35%)	Responsibility business dependent - Sustainability manager, restaurant management, head chef. (N7 = 30%)	Impact of livestock production - Plant-based is referred to as lower GHGE, but livestock is essential to fertilise the soil. (N10 = 43%)	Drivers are linked to traditional chef values – seasonality and quest for the best produce. (N13 = 57%)	HRM reach and scope are business-dependent and can be non-existent. (N10 = 43%)	Different chef identities: chef manager, chef-owner, media chef, freelance chef, entrepreneur chef, line chef, development chef, identities vary in subsectors. (N12 = 52%)	Competitive and collaborative - engage in friendly competition and enjoy collaborative working. (N12 = 52%)
Basic, fundamental skills – Cooking methods, knife and ingredient skills, necessary at the start, linked to food waste, possibly to GHGE. (N7 = 30%)	Opportunity to innovate and USP - Allows creative thinking, tangible and marketable. (N6 = 26%)	Energy consumption - Use of equipment, transport efficiency and green energy - driven by cost. (N9 = 39%)	Enablers vary depending on business, Catering vs hotel vs restaurant. (N13 = 57%)	Catering Struggle & Recruitment crisis - Learning and development, wage increases and benefits used to counter the lack of chefs. (N6 = 26%)	Develop menus - creators and inventors of food offers. (N8 + 35%)	Shared decision making - Involvement in change is expected and needed. (N11 = 48%)
Participants grapple with whether skills are applied knowledge. (N6 = 26%)		Local vs. Global - Local and seasonal are seen as key variables; grow your own. (N9 = 39%)	External influence - Management, customers, accreditations. (N13 = 57%)		The role changed from invisible to visible and from authoritative to empathetic leader. (N7 = 30%)	Attention span - Limited head space in business; ADHD is common in kitchen teams. (N10 = 43%)
Skills decline - Ingredient knowledge, fundamental skills, linked to the recruitment crisis, possibly to the standardisation and specialisation of businesses. (N6 = 26%)		Recycling and packaging - Reduced packaging, circular thinking. (N5 = 22%)	Reference to pro-environmental behaviours and attitudes, but not values. (N6 = 26%)		Manage Logistics of food preparation - food safety, procurement, stock keeping. (N6 = 26%)	Time famine of chefs - Busy, but also attached to an image of being busy. (N9 = 39%)

The thematic analysis of the culinary skills and competencies used the framework developed by Suhairom et al. (2019) to guide the core categories. Five competency categories from Suhairom et al. (2019) were found to be linked to food waste and GHGE reduction, four technical and one non-technical category. Thirteen inductive subthemes for those five culinary competencies emerged in the thematic coding. These are displayed in Table 2.

Table 2 Summary of thematic analysis of culinary competencies for food waste and GHGE reduction

Competency Category ^A	Technical ^A	Technical ^A	Technical ^A	Technical ^A	Non-technical ^A
	Threshold Competencies		Differentiating competencies		
Culinary competency ^A	'Mastery of Culinary Techniques' ^A & 'Culinary Products Knowledge-Wise' ^A (36 quotes)	Catering Services and Operations ^A (Logistics) (8 quotes)	Creativity ^A (8 quotes)	Innovation ^A (14 quotes)	Entrepreneurship ^A (3 or 18% quotes)
Inductive sub-theme for competency	Food knowledge and menu engineering (15 = 42% quotes)	Application of logistical/operational skills lowers resource use. (7 = 88% quotes)	Re-use and re-purpose of ingredients (2 = 22% quotes)	Production methods and storytelling (6 = 43% quotes)	N/A
Inductive sub-theme for competency	System's thinking (11 = 31% quotes)	Lack of logistical/operational skills leads to food waste. (1 = 13% quotes)	Marketing (2 = 22% quotes)	Traditional skills reimagined and storytelling. (6 = 43% quotes)	N/A
Inductive sub-theme for competency	Lack of knowledge of GHGE (6 = 17% quotes)	N/A	Recipe development and learning (2 = 22% quotes)	Use of new technology (2 = 14% quotes)	N/A
Inductive sub-theme for competency	Cooking technique (4 = 11% quotes)	N/A	Research/curiosity (2 = 22% quotes)	N/A	

^A Culinary competency category and subthemes adapted from Suhairom et al. (2019). The classification into threshold and differentiating competencies highlights how foundational skills support daily operations, while advanced competencies enable strategic innovation. These categories and subthemes collectively illustrate the multifaceted role of chefs in sustainability transitions.

RQ1 - If and which competencies and skills of chefs are linked to the reduction of food waste and GHGE of food offers in catering, and if stakeholders have observed those?

Education and training were seen as vital for successful chef careers, especially in commercial kitchens. Participants highlighted varied learning paths such as formal education, self-training, and international standards, emphasising the need for continuous skill development. Key

competencies linked to fundamental skills included cooking techniques and ingredient handling, whereas menu planning and broader skills such as communication and management were framed as advanced skills. Concerns were raised about declining fundamental skills and ingredient knowledge, partly due to recruitment issues and industry changes. Challenges included the lack of standardised professional development, integrating sustainability into training, and adapting to evolving technologies and business models.

Unexpectedly, participants appeared to grapple with the difference between skills and knowledge.

IS-001-F - Somebody needs to take that theory and say, OK, I can see today or yesterday you did your e-learning module on knife skills. Let's go through it and do it practically. And you do that once with someone and they'll remember it.

When discussing food waste reduction, participants highlighted innovation, role-specific responsibilities, and the importance of food offer planning. Rising food prices, driven by inflation and energy costs, were linked to menu adjustments and a stronger focus on waste reduction. Chefs often used creative strategies to repurpose surplus ingredients, driven by the need for innovation and market differentiation. Practices like accurate ordering and repurposing helped reduce both visible and invisible waste, with responsibility shared among chefs, managers, and sustainability leads.

Efficient menu design, use of offcuts, and balancing waste reduction with other priorities, such as food safety, productivity, and procurement, were recurring themes. Broader sustainability concerns included energy use, sourcing, livestock impacts, packaging, and transport.

ED-004-M - However, fresh stuff, you 86ing (removing an item from the menu), if you have 20 portions, ideally you sell all 20 portions, you've got no wastage when you're preparing something. What can you do with the offcuts and how smartly and how efficiently can you use those because they're paid for when you cost out your prime cuts for what you're doing, what do you do with the offcuts that are now paid for ...

Some participants spoke about GHGE whilst referring to food waste, but there was uncertainty about that link.

CH-004-M – (What do you know about GHGE reductions or reduction efforts associated with menus?) but you know to be honest I don't really know the question to answer it but I believe you know if we separate the food already in bins and the oil and all this I'm sure this might reduce already the percentage of it.

Cost-saving measures like green energy and local sourcing were common, with examples such as carbon-neutral operations and rooftop gardens. While plant-based diets were linked to lower emissions, some acknowledged the environmental role of livestock.

IS-004-M - in terms of greenhouse gas emission reductions, I mean a huge impact of that is of course the meat that people are serving.

The inductive analysis of skills linked to food waste and GHGE reduction supports that the transformation of menus toward sustainability requires a combination of both technical and non-technical competencies. Key technical skills include in-depth food knowledge, menu engineering, systems thinking, and logistical and operational expertise. Complementing these are essential non-technical attributes such as creativity, curiosity, and a strong drive for innovation. These capabilities collectively enable practices like ingredient repurposing and the design of low-waste menus. Together, they support more sustainable food planning and informed operational decision-making across the culinary sector.

Overall, there is a growing awareness among chefs and procurement teams of the need to integrate sustainability into menu planning. However, there are also misconceptions about the impact of different actions, with many focusing on the distance of transport, reducing packaging or the energy used in cooking.

RQ2 - To understand if and how HaFS stakeholders have observed the environmental values of chefs.

Participants found it challenging to articulate environmental values, as these are deeply personal, but they did report a noticeable rise in environmental attitudes and behaviours within the culinary sector. This shift is reflected in practices like zero-waste initiatives, local sourcing, and seasonal menus. Influences such as education, media, customer expectations, and cost pressures were seen as key drivers. Traditional chef values, such as 'chefsmanship', like seasonality and pursuit of quality, were often aligned with sustainability. Sustainability was seen as a space for innovation. Environmental practices varied across catering sectors, shaped by business models, customer demands, and external pressures like net-zero goals and industry standards.

SM-001-F – So, I think if we separate like behaviour and actions that chefs can do, you've got kind of in-kitchen practices. So, you've got like energy awareness or water awareness, but also like food waste awareness. So not just measuring and monitoring food waste, but that kind of careful stock management. You know, some chefs are much better than others at that stuff.

RQ3 - Do HaFS stakeholders perceive HRM strategies as enabling environmental behaviours? How are HRM strategies influencing businesses' sustainability ambitions?

While participants acknowledged HRM's role in employee well-being, recruitment, and improving working conditions, especially post-COVID, there was little direct connection made between HRM and food waste or GHGE reduction. Challenges such as limited HR support, resource constraints, and staff retention were common, particularly in smaller establishments. Although some saw the potential for HRM to support sustainability through CSR, only a few explicitly linked HRM practices to environmental outcomes, suggesting this remains an untapped area for environmental sustainability.

CH-006-M - They could work together with, H.R. too, because (...) you can't depend on one person being the head chef to implement that. There's no way the head chef got way too much to be doing, and so it has to be (...) formally put together between (...) the owners, the head chef, if whoever is in (...) charge of H.R., I mean, it has to be a team effort and everyone needs to agree and buy into what people are doing and (...) understand why it's a problem. Because again, like if you don't understand why it's a problem, then why would you care about doing anything about it?

RQ4 - Do HRM strategies, environmental values, and chef competencies and skills play a role in a microsystem involved in the creation of food offers with reduced food waste and GHGE?

The thematic analysis suggests that while HRM strategies operate at the exosystem level, shaping policies and structures, they do not directly influence the microsystem interactions within kitchens that drive food waste and GHGE reduction. Instead, chef competencies and skills, embedded in daily kitchen routines and interpersonal dynamics, appear more influential in shaping sustainable menu practices.

Although environmental values could not be assessed through semi-structured interviews, increased environmental attitudes and behaviours were reported, likely reflecting a macrosystem-level shift in societal discourse. Chefs today balance culinary creativity with administrative, leadership, and even marketing responsibilities, reflecting a shift toward more visible and multifaceted professional identities. This evolving role of chefs, balancing creativity, leadership, and administrative tasks, illustrates the complexity of the microsystem, where professional identity and practical constraints intersect. The emergence of empathetic leadership and the challenge of "time famine" highlight the need for interventions that are practical, time-efficient, and visually engaging, tailored to the realities of kitchen environments and the multifaceted roles chefs now occupy.

Discussion

The discussion will review the results of this study in the order of the research questions and link those back to the proposed microsystems model. First, the role of chefs' competencies

and skills in food waste and GHGE reduction will be discussed, followed by environmental values, HRM strategies and their impact on food waste and GHGE. In the final section, the proposed theoretical microsystems model will be revised based on the insights from this research.

Overall, the interviews confirmed that there are competencies and skills that enhance chefs' capacity to shift food offers and reduce food waste and GHGE in catering. However, this was challenged by some participants who perceived that the lack of environmental behaviours is rooted in missing knowledge rather than skills. The interviews confirmed competencies and skills as a relevant contributor to reduction efforts in food waste and GHGE. However, the competencies, including skills and knowledge levels of chefs linked to food waste and GHGE, differ.

The unexpected emphasis on knowledge over skills may reflect a shift toward broader capacity frameworks that encompass the qualities needed for a role. This aligns with Wheelan et al. (2022), who argue that skills policy is shaped by human capital theory, which commodifies worker capabilities. As a result, skills and knowledge perceived to add business value are prioritised in training and awareness. Since environmental behaviours may not always yield immediate business benefits and can even incur costs (Jacobs and Klosse, 2016; Zanella, 2020), they may not be recognised or developed as 'skills and competencies' contributing to this disconnect.

We will briefly summarise how academia conceptualises the difference between skills and knowledge and how they are connected. Fischer's skill theory describes how cognition and environmental experiences interact to develop skills (Fischer, 2009). As cognition develops with age, skills are dynamic and evolve throughout life. This suggests there is an interaction between knowledge and skill; this interaction is dynamic, and with new knowledge, new skills can be developed, but equally, these skills can contribute to new knowledge. This is further supported by the experiential learning theory first proposed by Kolb (Azar et al., 2020; Ochago et al., 2024).

Fischer (2009) argues that research questions often develop dynamically between research and practice, and this could explain why the research question was reinterpreted by the participants and actively challenged. As GHGE knowledge in food production is still emerging, it is unsurprising that catering practices and related skills are underdeveloped. Franchini et al. (2024) delivered an educational intervention at a catering college in Italy. Participants referenced more skills linked to food waste reduction than GHGE reduction. Food waste reduction is a concept most participants would be more familiar with, given that food waste reduction helps to ensure profit margins. It is a concept that has been included in training for

many decades. Some educators' feedback supported the idea that the teaching of environmental impacts of food, linked explicitly to GHGE, is only now being implemented and that the educational frameworks and standards required for chef NVQ levels have not been updated in the past decade. Filimonau et al. (2023) similarly observed that although awareness of food waste is growing, chefs lack the skills to address it. Recent ESG legislation may shift GHGE reduction into a value-adding skill, creating opportunities for research into how chefs interpret and apply this new knowledge. Stam et al. (2023) emphasise that learning is shaped by social context, reinforcing the need to understand how chefs develop skills and competencies within their working environments. Stam et al. (2023) stress that learning is shaped by social context, reinforcing the need to understand how chefs develop skills and competencies within their working environments.

Suhairiom et al. (2019) identified a set of competencies deemed essential for superior culinary performance, and while the UK City & Guilds skills standards in their data analysis were considered, the primary data collection (semi-structured interviews) was collected from Malaysian chefs. It was also not explicitly designed to explore the skills and competencies linked to food waste and GHGE reduction. Thus, it is unsurprising that not all six competency constructs: Technical, Non-Technical, Personal Quality, Self-Concept, Physical State, and Motives were mentioned in the context of food waste and GHGE reduction. However, the findings here fit into four of the subthemes under technical and into one of the subthemes for non-technical capacities. Five competency categories from Suhairiom et al. (2019) were found to be linked to food waste and GHGE reduction, four technical and one non-technical. These categories reflect both foundational and advanced capacities, with threshold competencies supporting operational efficiency and differentiating competencies enabling strategic innovation. The emergence of thirteen inductive subthemes, such as systems thinking, menu engineering, and ingredient repurposing, demonstrates how these competencies interact to shape sustainable culinary practices. These subthemes also reveal how chefs navigate constraints and opportunities within their microsystem, directly addressing RQ1 by illustrating the observed competencies that support environmental outcomes

Suhairiom et al.'s (2019) framework summarises competencies, not skills, and it supports the breadth of capacity requirements for chefs. They emphasise that a chef is an all-rounder in the hospitality industry who needs advanced culinary experience and food knowledge, which the participants of this study confirmed. Notably, the emergence of creativity and innovation as key themes aligns with Tang's (2017) distinction: creativity is associated with the generation of novel ideas, while innovation involves the application and implementation of those ideas in practice. This distinction is particularly relevant in sustainability contexts, where chefs must not only conceive new approaches to reduce waste but also operationalise them effectively.

The subthemes identified here reinforce the need for diverse and synergistic competencies that enable chefs to transform food offers in ways that are both imaginative and impactful. Importantly, the classification into threshold and differentiating competencies provides a framework to understand how basic operational skills (e.g., logistics, culinary techniques) interact with higher-order capacities (e.g., creativity, innovation) to drive sustainability. This layered competency structure helps explain the mechanisms through which chefs enact change, linking directly to RQ1 and RQ4 by showing how these competencies operate within the microsystem and contribute to food waste and GHGE reduction.

Chefs are often time-scarce (Cerasa *et al.*, 2020; Murray-Gibbons and Gibbons, 2007), as confirmed by this study's findings. Thus, space and opportunity for sense-making might be needed. Participatory research and systems change facilitation (Scharmer, 2016) could help chefs navigate the complex, sometimes conflicting goals of reducing food waste and GHGE, enabling them to adopt new narratives and apply this knowledge in practice.

Several researchers, including Liu-Lastres *et al.* (2023), Pratten (2003), Pratten and O'Leary (2007) and Rydzik and Kissoon (2022), have examined the decline in culinary skills. Pratten and O'Leary (2007) noted that the NVQ-level training content was already seen as inadequate at the time. Participants echo this, highlighting that many of the catering school courses remain outdated, with nutrition training, for example, offered only as optional enrichment rather than core curriculum.

The study identified five themes related to environmental beliefs, attitudes, and behaviours, but not value, with each theme mentioned by over 20% of participants, except '*Opportunity to innovate and a USP*', noted by only three. Unsurprisingly, pro-environmental behaviours, beliefs and attitudes were reported rather than 'values'. Pro-environmental beliefs and behaviours are thought to be underpinned by a set of intrinsic personal values (Bouman *et al.*, 2018), which are consistent throughout a person's life. Biospheric (i.e., valuing the environment), altruistic (i.e., caring about the welfare of other people), egoistic (i.e., prioritising personal opportunities) and hedonic values (i.e., the desire to be comfortable) are most predictive of environmental beliefs and behaviours (Bouman *et al.*, 2018). Thus, these dimensions of personal values could be understood as the core construct of one's environmental values. While prior studies have used validated tools like the European Values Study (2020) to assess such values, this study relied on semi-structured interviews focused on observed or recalled behaviours. To accurately assess environmental values, future research should use validated questionnaires rather than anecdotal accounts.

Bergman (1998) examined how attitudes, beliefs and values are defined and used across disciplines, noting that overlapping definitions can cause confusion. He argues that cognitive

constructs and their evaluations shape attitudes, while values are stable and inert. The strength of an attitude, shaped by knowledge, curiosity and social relevance, affects behaviour and interacts with personal values. Beliefs and behaviours are co-constructed by individuals and their social groups. This suggests that examining chefs' beliefs, attitudes, and behaviours can help map the meanings and structures behind environmental actions in HaFS and highlight the role of external influences on behavioural and attitudinal change.

Participants noted a rise in public environmental awareness, which may have strengthened chefs' pro-environmental attitudes, such as reducing food waste or GHGE. They observed that environmental issues are now more commonly discussed, suggesting growing attention to sustainability in the HaFS sector. Filimonau et al. (2023) support this, highlighting increased awareness and the role of corporate influence, arguing that action often depends on alignment with company policies. Given the slight gender imbalance in our sample (more male participants), it is worth noting that food waste behaviours can vary by gender (Ashton *et al.*, 2024), possibly tempering the evidence of environmental attitudes and behaviours here.

Our results indicate that if environmental behaviours such as food waste and GHGE reduction can support taste and food quality, there is a greater likelihood for chefs to endorse such behaviours. These findings echo Pereira et al. (2019), who argue that by incorporating Indigenous knowledge and traditional foods into the food system, chefs can build more sustainable, equitable, and just food systems. The direct work of chefs and their social groups appears currently not to be curated towards environmental behaviours by HRM strategies, and the apparent gap in the understanding of embedded GHGE in foods is a further barrier to change.

Interviews revealed that management, customers, media, and industry accreditations strongly influence environmental behaviours. Yaris and Yazıcıoğlu (2022) found that adopting eco-friendly practices in restaurants depends on the interplay between attitudes and subjective norms. They argue that such practices thrive in supportive contexts; managers are more likely to adopt them when they are seen as financially beneficial or socially expected. This reinforces the idea that the context in which chefs operate is crucial for driving changes to reduce food waste and GHGE.

Nevertheless, the analysis does not support the proposed idea that HRM practices consistently support pro-environmental behaviours such as GHGE and food waste reduction in the sector. However, the 'social' dimension of CSR was seen as being promoted and supported by HRM. Ensuring compliance with legal requirements such as how to treat people, what minimum requirements are needed to work in kitchens, diverse and equitable

recruitment, and staff welfare considerations were most participants' key reference points to HRM.

Ma et al. (2024) found that CSR in Chinese hotels directly influenced food waste reduction, driven by moral attitudes, employee admiration, and climate change awareness. However, participants in this study reported that HRM practices focused mainly on the social side of CSR, with little support for environmental goals. This aligns with Stahl et al. (2020), who highlight tensions between HRM and CSR due to differing stakeholder priorities, HRM focuses internally, while CSR looks outward. The staffing shortages and economic pressures noted by participants suggest HRM teams prioritized recruitment and employee well-being over environmental initiatives. Stahl et al. (2020) also observed that few HRM functions actively shape CSR practices, which reflects our findings.

Zientara and Zamojska (2018) propose organisations' environmental performance needs employee engagement. Most organisations improve their environmental performance through CSR strategies, which aim to increase staff's pro-environmental behaviours. Direct peers (i.e. the kitchen brigade) are the initial context of sense-making of environmental actions, but an organisation's policy and strategy can modulate this process. This is true for green organisational climate, i.e., the shared understanding of a business's commitment to environmental sustainability. This reflects the concept of this research, which is that the environmental values of chefs, HRM strategies, and chefs' competencies and skills are interlinked.

Participants revealed that HRM's role varies greatly among different business types in the HaFS sector. Kusluvan et al. (2010) cite the business model as the underlying reason for differences in HRM strategies in contract catering, hotels, independent restaurants, and businesses of varying sizes. Sarwar et al. (2024) evidenced the divergence of HRM linked to CSR on environmental performance in hotels in the UK, Italy, and Pakistan. Sustainable performance was relatively stronger in 5-star hotels. However, three-star hotels performed better than 4-star hotels. Thus, comparing different types of HaFS businesses could help to understand and map where HRM currently support the environmental dimensions of CSR.

This study identified key chef competencies and skills that support food waste and GHGE reduction but found no consistent evidence that HRM strategies directly influence these behaviours. Due to methodological limitations, underlying environmental values were not captured, though an increase in pro-environmental attitudes and behaviours was reported.

Yuriev et al. (2020) propose a roadmap for applying the TPB, which raises questions about its suitability for exploring broad outcomes like food waste and GHGE reduction. More targeted behavioural variables, such as the 'intention to reuse by-products' or 'increase plant-based

dishes', may be more appropriate to test TPB. Thus, the model (Figure 3) has been adapted to behaviours and attitudes rather than environmental values. Given that some participants questioned whether skills or knowledge gaps hinder pro-environmental action, integrating dynamic skills or experiential learning theory could help explain context-specific behaviours and how abstract concepts like embedded GHGE translate into menu design. We found that there was no consistent understanding of embedded GHGE; thus, Chawla and Lugosi's (2025) insights might help explain why there were fewer GHGE reduction behaviours observed. The lack of shared understanding around GHGE may also limit the shared value and purpose of menu reformulations. Without that, chefs may not be in a position to develop this practice. Finally, the perceived disconnect between HRM strategies and kitchen-level behaviours suggests that while HRM operates at the meso-system level, kitchen team dynamics and leadership (Filimonau, Matute, *et al.*, 2024) are more likely to shape the microsystem where social norms are formed thus, the work of Ashton *et al.* (2024) on interactions of different systems boundaries could be helpful to develop the revised model Figure 3 further.

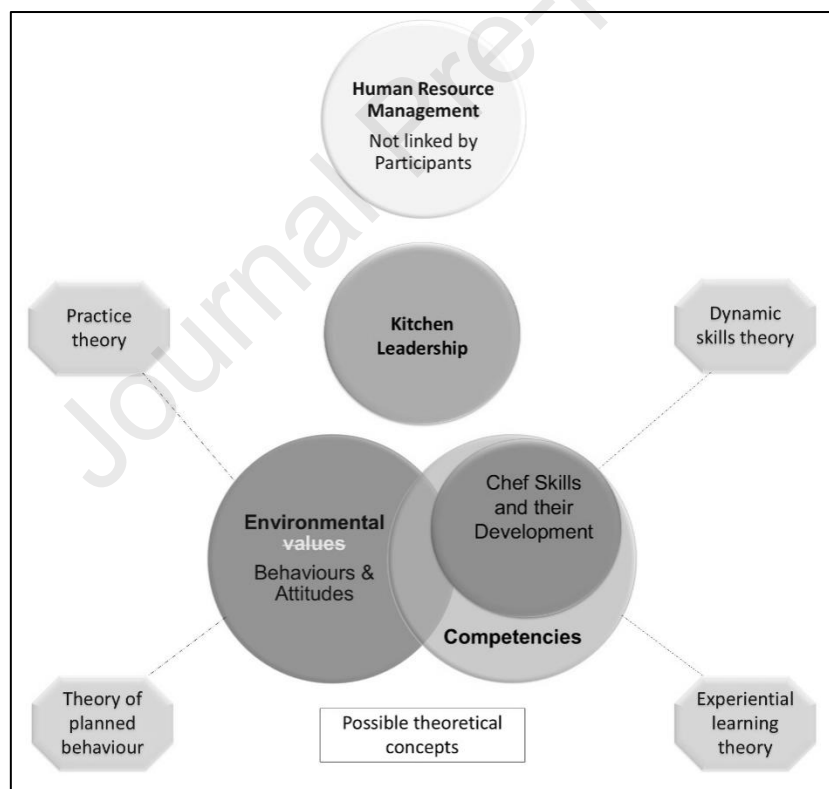


Figure 3 Revised microsystems model – 1) the disconnect between HRM strategies (at the meso-system level) and kitchen-level behaviours (at the microsystem). 2 The replacement of environmental values with environmental behaviours and attitudes.

Study limitations

This is a cross-sectional study carried out in the UK, which relied on professional and personal networks, and thus, the findings might contain selection bias, are not globally representative and temporal. While these reflect the views of people in the UK sector at the time of the study,

new themes and priorities are emerging. Recruitment was time-intensive, with 9 stakeholders declining, 9 not responding, and 8 recommending others. Time constraints, and lack of interest were barriers. Scheduling interviews with chefs was particularly difficult due to their demanding work schedules and limited availability. Although most interviews were conducted online via Microsoft Teams, some were interrupted by colleagues, which may have affected the depth of responses. These interruptions, along with the variability in interview settings (e.g., kitchens, offices, homes), introduced inconsistencies in data collection. It was also difficult accessing sustainability professionals, whose roles are relatively new and less prevalent in the sector. These factors may have shaped the scope and depth of the data collected. Thus, future studies may wish to review how these insights stack up over time and potentially create more longitudinal insights to understand changes over time.

Others have reported that gender influences sustainable practices (Ashton *et al.*, 2024). This study had a higher proportion of people identifying as male (57%), which may have influenced the types of practices and attitudes reported. Given persistent gender disparities in professional kitchens and evidence that women may approach sustainability differently, gender should be considered a relevant factor in future research. A more balanced sample could help uncover gendered dimensions of environmental behaviours and competencies.

While the study reached thematic saturation across most interview dimensions, saturation was less evident in discussions specifically related to GHGE. Several participants struggled to articulate the connection between food procurement, menu design, and GHGE, often conflating it with general energy used, type of transport of products or food waste. This suggests that GHGE remains an abstract or unfamiliar concept for many chefs and stakeholders in the HaFS sector. As a result, the depth and consistency of data related to GHGE were limited, and some inductive themes, such as systems thinking or embedded carbon, were underrepresented. This limitation highlights the need for future studies to incorporate targeted prompts, visual tools, or training materials to support participants in engaging with complex environmental concepts like GHGE.

Our analysis suggests that distinct drivers and enablers may influence different subsectors within HaFS businesses. Businesses that have made either mandatory or voluntary commitments to report specific environmental impacts, such as food waste, tend to engage more actively in internal communication and collaborate with campaigns and organisations to raise awareness and drive change both internally and externally. This presents an opportunity to explore more specific aspects of HRM within these subsectors, including internal policies, communication strategies, training, and recruitment practices, which this study did not aim to

do. Additionally, support mechanisms vary across the sector, as highlighted in the Transition Plan Taskforce's 2024 report for Food and Beverage.(2024) for Food and Beverage.

Bergman (1998) argued that social groups influence the construct and strength of attitudes. Thus, if there are different reporting priorities, information sources and support for various parts of the sector, the way pro-environmental attitudes are shaped may differ. This would suggest there should be observable differences in the practices linked to food waste and GHGE of food offers, as well as the co-created meaning, which could be explored by further research.

Conclusion

This exploratory study offers initial insights into the competencies and skills that may enhance chefs' capacity to shift food offers and reduce food waste and GHGE. However, these findings are based on a relatively small and context-specific qualitative dataset. As such, they should be interpreted as indicative rather than definitive. The study highlights potential pathways for sustainability in professional kitchens, but further research is needed to validate and generalize these findings across different HaFS settings and chef demographics.

This study resulted in the following key learnings:

- A. There is some evidence that specific competencies and skills could enhance the chefs' capacity to shift food offers and reduce food waste and GHGE. Some participants challenged the researcher's proposal that skills are the precursor of pro-environmental behaviours: for them, the lack of engagement with food waste and GHGE reduction was rooted in a lack of knowledge. This opened an exploration of skills theories to explain abilities to act differently based on emerging knowledge. Given that chefs have been framed in this study and elsewhere as time-scarce, there would need to be a space created for collective sense-making to support practice formation.
- B. Exploring chefs' environmental values would require using a validated tool, whereas pro-environmental attitudes and behaviours are more likely to be markers of action and transition in kitchens. Participants reported increased pro-environmental beliefs, behaviours and attitudes driven by increased public awareness and cost pressures.
- C. HRM strategies were not consistently linked to pro-environmental behaviours and attitudes by the participants. The 'social' dimension of CSR was linked to HRM. In contrast, the 'environmental dimension' of CSR was mentioned very rarely, and when it was, it was an opportunity for HRM but not experienced by participants in reality.

HRM was seen as being focused on recruitment and ensuring people in the business have the legally required training.

- D. Participatory research methods could support chefs in exploring the potentially paradoxical decisions to reduce food waste, GHGE of food offers, and associated complexities. These Participatory methods may allow chefs to integrate new knowledge of GHGEs and develop the ability to apply this 'new' knowledge in their contexts, such as menu engineering.

While HRM may not directly drive environmental outcomes, it influences workplace culture, training, and staff retention, indirectly supporting sustainability. Chefs' growing environmental awareness must be matched with both technical and non-technical skills, such as food knowledge, menu engineering, systems thinking, logistics, creativity, and innovation, to enable practices like ingredient repurposing and low-waste menu design. These capabilities are essential for sustainable food planning and operations.

However, parts of the proposed model were not confirmed. Specifically, the assumed link between HRM strategies and pro-environmental behaviours, while the concept of skills linked to reducing food waste and GHGE, was challenged, indicating that it requires greater competency sets than the focus on technical and non-technical skills; these areas need refinement in future research.

Given the exploratory nature of this research, its conclusions are best understood as a foundation for future inquiry rather than a comprehensive account of sector-wide practices. Larger, more diverse samples and mixed-method approaches could help substantiate and expand upon the themes identified here.

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Declaration of generative AI and AI-assisted technologies in the writing process.

During the preparation of this work, the author(s) used Grammarly Pro in order to improve the grammar and spelling of this paper. After using this tool/service, the author(s) reviewed and edited the content as needed and took full responsibility for the content of the published article.

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Non-standard abbreviations

IT – Inductive themes

DT – Deductive themes

GHGE – Greenhouse Gas Emissions

CSR – Corporate Social Responsibility

HRM – Human Resource Management

TPB – Theory of Planned Behaviour

HaFS – Hospitality and Food Service

Supplementary Information

Appendix A - Participant selection and recruitment

Participant selection criteria

Pre-research conversations with researchers and industry representatives informed the following selection criteria. Within the stakeholder interviews, the goal was to achieve a relatively even spread of participants in these four dimensions (that meant 5 participants each if 20 stakeholder interviews were carried out). If this would for any reason not be achievable, a minimum of one stakeholder from each of the below stakeholder groups (A-B) would be interviewed:

Participants must:

- A. Work in organisations that work with HaFS and chefs (i.e. trades bodies or relevant NGOs or consultancy businesses) and have been established for at least 2 years
- B. Or be professionals who engage with chefs professionally to reduce the environmental impact of catering businesses (i.e. business sustainability manager) and have been working in this capacity for at least 2 years.
- C. Or must be currently a chef and have been working as a chef for at least 2 years.
- D. Or must be chef trainers or educators for a minimum of 2 years.

The inclusion criteria take a 360-degree approach to chefs' experiences from the perspective of sustainability initiatives in catering. They are rooted in Bronfenbrenner's (Bronfenbrenner, 1995) ecological systems theory and aim to explore chefs' micro and meso systems. Informants should have at least two years of exposure to working with chefs. That would suggest their experience is varied and not based on a limited number of interactions. Figure 2 is a visual representation of this participant selection framework.

Participant Recruitment:

The lead researcher reached out to a personal network of industry stakeholders to become a participant or to recommend and introduce peers to this research. Potential participants were contacted through direct emails or LinkedIn messages from pre-existing connections. When participants were recommended, the introduction was made through emails from researchers' contacts, ensuring that GDPR requirements were met. Some initial contacts are members of wider networks such as WRAP, SRA, the Worshipful Company of Cooks, Be Inclusive Hospitality, the Food Standards Agency and Culinary Colleges, which supported the introduction of participants.

Forty-nine stakeholders were contacted between 26th April and 4th June 2023. Interviews were scheduled predominately remotely via Microsoft Teams and were booked to last 90 minutes. Participants received an information sheet, a consent form, and, after each interview,

a debrief form. The researcher offered all participants verbal debriefs and explained that a report of the interviews would be created and subsequently shared with them. Interviews took place between 12th May and 27th July 2023.

Appendix B - Semi-structured Interview guide for stakeholder interviews

Introductions and brief explanation of the project

Thank you for agreeing to take part in my study. I am a PhD researcher from Brunel University working on a project exploring chefs' skills and environmental values, human resource management strategies and how these interact with food waste reduction and greenhouse gas emissions associated with menus in London restaurants.

- A. Could you first confirm you have read and understood the information sheet?
- B. Do you have any further questions before we begin?
- C. Could you kindly send the consent form linked to this interview to my email:
andrea.zick@brunel.ac.uk

From looking at your website/social media presence, I believe you to have an insight into the key themes of my research, so during the interview, I hope to explore the following themes with you.

1. Environmental values of chefs
2. Skills of chefs which link to food waste and GHGE of their food offer
3. Human resource management strategies in restaurants
4. Food waste in restaurants
5. GHGE of menus

Is that correct?

- **Before we explore these themes:**

- a) Could you tell me a bit more about yourself and your role linked to chefs or restaurants?
- b) How your organisation and you work with chefs or restaurants?
- c) How long have you been involved in working with chefs or restaurants in this way?

- **In your opinion, what is the role of chefs in restaurants?**

- **Thinking about the theme of environmental values:**

a) Could you tell me if you have observed chefs expressing environmental values either through conversations or through actions?

b) Could you describe situations when that happened?

- **Thinking about chefs' skills:**

a) In terms of skills, could you talk about the skills chefs need to be successful working in restaurants?

b) And now, reflecting on the skills you mentioned - are there skills which could be especially relevant to food waste and GHGEs of menus?

c) Are there skills which might be relevant for chefs to reduce food waste and GHGE of menus which we have not yet touched on?

d) How are chefs acquiring these skills?

- **Now, thinking about the theme of Human Resource management strategies**

a) What comes to mind to you when you think of human resource management in restaurants?

b) In terms of human resource management strategies, could talk about if and how they may affect the work of chefs?

- **Now, thinking about food waste in restaurants.**

a) What do you know about food waste reduction approaches/strategies in restaurants, and who is involved with these in restaurants?

b) Who will be most likely involved in food waste reduction approaches in restaurants?

c) How are they involved? What do they do specifically?

d) Could you describe approaches/strategies of food waste reduction you have come across?

- **Now, thinking about GHGE linked to restaurant menus**

a) What do you know about GHGE reduction efforts associated with menus and who is involved in these in restaurants?

b) Could you describe approaches you have come across?

c) If you have not come across any approaches, could you share thoughts on what these could be?

- **Working with chefs – best practice**

- a) Now, thinking about working with chefs to explore these themes, what do you think I would need to do to get chefs to talk about these subjects?
- b) Are there things/approaches which would make chefs more likely to engage with my research, and what could these be?
- c) How do you think visual and interactive approaches would be perceived by chefs?
- d) If I invite chefs to workshops, how long do you think would be suitable for the workshop?
- e) What would be important for chefs to take part in a workshop?
- f) If I work with chef, how frequently would you allow for breaks?

- **Over to you**

- a) Would you like to recommend someone I should speak to for other stakeholder interviews?
- b) What am I missing is there anything you would like to share which could aid my research, which we have not yet spoken about?
- c) Would you like me to stop the recording for that?

Many thanks for your support!!!

Appendix C - Descriptive Results

The first call-out for participants was on the 26. April 2023, with the first interview completed on the 12. May and the last interview will be on the 27. July 2023.

The researcher reached 49 stakeholders, of which 8 (16%) suggested someone else, 9 (18.5%) declined or, after initially agreeing, did not engage in setting up an interview date, and 9 (18.5%) stakeholders did not respond to the request. Twenty-three (47%) interviews took place.

Fifteen (65%) participants were recruited through the researchers' industry network, and eight (35%) were referrals to the researcher through the network. Participant recommendations helped to access a network further removed from the researcher's connections; however, due to the framing of the researcher's questions, many participants recommended participants who had engaged in sustainability work in some way as part of their roles. This meant the researcher had to consider whether to bring in those recommended to broaden the perspective away from the researcher's network and to risk a potential bias of the researcher towards more sustainability engagement. This suggests that the participants of the stakeholder interviews may be more engaged in the debates and narratives around food waste and GHGE. Six participants (26%) were interviewed, and 17 (74%) of the participants interviewed were part of the researcher's professional network.

Table 3 shows that the aim to have at least one participant from each stakeholder group engaged was achieved. It reports the interviews' dates and duration and the sector's self-reported length. It is worth noting that the researcher consciously asked the participants to self-describe and identify and did not ask for their age, culture and gender identity within pre-set groups/boundaries. The purpose was to allow participants to use their constructs of identity and allow a more equal footing with the researcher during the guided interviews and a better flow of conversation.

Table 3 Participant Summary

Participant code	Group	Date	Duration (min)	Length in sector (years)	Description of role	Description of organisation
CH-001-M	Chef	17/05/2023	34	30	Executive chef	Independent, fine-dining restaurant
CH-002-F	Chef	24/05/2023	31	6	Freelance chef/consultant/trainer	Self-employed
CH-003-M	Chef	25/05/2023	53	25	Executive chef	5-star hotel with restaurants
CH-004-M	Chef	26/05/2023	28	28	Executive chef	5-star hotel with restaurants
CH-005-M	Chef	26/05/2023	53	30	Executive chef	5-star hotel with restaurants

CH-006-M	Chef	01/06/2023	42	15	Freelance chef	Self-employed
CH-007-M	Chef	02/06/2023	73	10	Community project chef	Community charity
CH-008-M	Chef	12/06/2023	48	10	Sous Chef	Independent, fine-dining restaurant
Ch-009-X	Chef	24/07/2023	58	4	Freelance chef/consultant/trainer	Self-employed
ED-001-M	Educator/Trainer for chefs	16/06/2023	53	14	Teacher/chef/training provider	UK-based training provider
ED-002-M	Educator/Trainer for chefs	16/06/2023	53	30	Teacher/chef/training provider	UK-based training provider
ED-003-F	Educator/Trainer for chefs	23/06/2023	45	22	Teacher/chef/training provider	UK-based training provider
ED-004-M	Educator/Trainer for chefs	04/07/2023	71	37	Teacher/chef/training provider	UK-based training provider
ED-005-M	Educator/Trainer for chefs	06/07/2023	54	24	Teacher/chef/training provider	UK-based training provider
IS-001-F	Industry Stakeholder	12/05/2023	97	20	NGO employee	Social enterprise/NGO for sector
IS-002-F	Industry Stakeholder	18/05/2023	81	10	Journalist/researcher	Food industry news
IS-003-M	Industry Stakeholder	01/06/2023	33	40	Chef specialist recruiter	London-based hospitality recruiter
IS-004-M	Industry Stakeholder	02/06/2023	44	15	NGO employee	Social enterprise/NGO for sector
IS-005-F	Industry Stakeholder	08/06/2023	57	12	Journalist/researcher	Food industry news
IS-006-F	Industry Stakeholder	23/06/2023	23	20	Founder of industry non-for-profit organisation/social enterprise	Social enterprise/NGO for sector
SM-001-F	Sustainability professional	25/05/2023	66	5	Sustainability Manager	Contract caterer
SM-002-F	Sustainability professional	31/05/2023	40	5	Business founder/sustainability advisor	SME start-up
SM-003-F	Sustainability professional	12/06/2023	48	4	Sustainability Manager	Contract caterer

The self-reported gender identity of the participants is displayed in Table 4. A higher proportion of people identified as male than female or non-binary. Within the different categories, a higher proportion of people identified as male in the chefs and chef educators category and more participants identified as female in the sustainability professionals and industry stakeholders' group.

Table 4 Participant gender identity

Non-Binary	1 (4%)
Women	9 (39%)
Men	13 (57%)

The highest proportion of interview contributors were chefs, followed by industry stakeholders, educators and sustainability professionals, as seen in Table 5. Finding sustainability professionals was slightly tricky. This is maybe not surprising as these roles are relatively new to the industry. They could be seen as an added cost because they are not directly helping to drive income, and implementing sustainability practices and policies would not require as many people, so the proportion to the number of chefs' roles would be expected to be lower. It is worth noting that some participants could have fallen into either of these categories, with some freelance chefs and some industry stakeholders advising businesses on sustainability issues. All educators had previously worked as chefs and some industry stakeholders, too. That meant that when choosing the participant category in this research, the current role was used to group them. All interviews, except two, were carried out remotely. The two in-person interviews had been arranged upon request from the participants and were recorded and transcribed with Microsoft Teams. All interviews except one were completed in one session. The split interview was with a chef who could not set 90 minutes aside for the interview in one session.

There was a diversity of participants in terms of their country of birth. However, this diversity almost disappeared when chefs were excluded. On the other hand, the cultural identity of those in the non-chef groups was more diverse, with participants from several ethnic backgrounds in the UK. Hence, the researcher believes the goal of including a broad cultural reflection of stakeholders' views was met.

Table 5 Stakeholder group comparison

	Number of participants	Average interview length	Average years in sector
Industry Stakeholder	6 (26%)	56	19.5
Chef	9 (39%)	47	17.5
Sustainability Professionals	3 (13%)	51	4.7
Educator/Trainer for chefs	5 (22%)	55	25.4

Role of Chefs

Participant ID	Inductive theme: <i>Cook tasty food and transform ingredients</i>
CH-001-M	We as chefs, and this is our job, is why we get into it is because we feel a pride. To be able to cook for people and eat food that they're gonna enjoy. So that's where you. You never want to lose sight of that if you start to lose sight of that.
CH-002-F	So I would say to provide and, well, I was gonna say high quality to the quality of the restaurant and so to provide to develop and create an execute a food menu that's relevant for that business
CH-002-F	But I think obviously different chefs at different levels within a kitchens are generally quite hierarchical places, so different people will have sort of different responsibilities and I think, yeah. Essentially, it's about making, designing, and making the food and timely manner to the high, you know, to the standards required by that business and so on.
CH-004-M	So for me the most important is the team food quality and your your guests.
CH-005-M	The basic role of a chef in a restaurant is to provide food safely and as nutritionally as possible and with the imagination and flair to please or raise expectation of of a paying customer. That's primarily the role of a chef.
CH-006-M	prepare and be responsible for the products that comes into the restaurant
CH-007-M	I'd say the three main things is prep in the kitchens are been and is prep service and kitchen hygiene
CH-008-M	Generically as Chef is a the role of a chef is one of the core role in a restaurant, as he is making a or transforming the produce that comes through the door into what is not at the end the final product and what the end cost at the table.
CH-009-X	The chef, I mean, above all else, to cook and provide and like, provide really delicious food. Ohh would say that nothing exists in a vacuum and everything is you know inherently political and so I do think that chefs have some responsibility to consider what they put on their menu as well and to think about the impact on the environment where you know the impact on the environment and maybe like the impact on the social environment around the restaurant
CH-009-X	The chef, I mean, above all else, to cook and provide and like, provide really delicious food.
ED-001-M	role of chefs in restaurant is to. Feed people. Umm, with UM, good wholesome food that is, produce safely and ethically
ED-002-M	Well, obviously they are there to make the money They're there to carry our service and do all the meals on plates,

ED-005-M	That's a hard question, isn't it? The role of chefs in restaurants, I mean obviously to provide good meals that are value and to give customer satisfaction. And I would say that's predominantly what the role is obviously to showcase their skills to the customer,
ED-005-M	I see the role of chefs different to the role of restaurants. Umm, the restaurant in its purest form, in its most basic role is to provide. Yeah, food to the public
IS-002-F	So I mean on a very basic level, it's to it's to prepare the food for the customer,
IS-002-F	So I would say yes on, on a very basic level as preparing the food, but actually they influence kind of an enormous amount of that. My understanding is that most operators have a large portion of that footprint comes from the kitchen itself rather than the restaurant or the, you know, the area.
IS-003-M	But in terms of how chefs, how chefs are, there are a number of chefs who are extremely creative and have the ability to look at food, look at dishes, look at ingredients, and be able to work and develop and work with those ingredients and put them on a plate.
IS-005-F	Umm, the role I would say is for them to. Provide well, hospitality and to provide good substance. Sustenance gonna say the word. Sustenance. Good sustenance, and to provide great hospitality and to provide a memorable dining experience for the customers
SM-001-F	it comes down to without good food, you're never gonna get people to come to your place of business. And this is something I say a lot in my role like, yes, you want the food to be sustainable, yes, you have to consider all these elements. But at the end of the day, it has to be tasty.
SM-001-F	And we are every day we ask them to do something that is not central to their Core mission, which is serving food and but we have to serve food that not gonna kill the planet. Not gonna kill anyone is gonna make a profit like, like, essentially like. Those are the things we need to do, not kill anyone, not kill the world and make financial sense.
SM-002-F	so the role of chefs and restaurants I think is to create a desirable product for the customers in their target market with restaurants.
SM-003-F	I guess like my opinion as like from a sustainability manager perspective is like of course there's the cooking element. But I think that, you know, that's kind of just like the core of being a chef. But I think there's so much more to it. There is like the I guess, quite like a sort of like. I don't know if systemic approach is the right word, but like you know, kind of like long-term thinking about like how you integrate something that's on a menu one day into the other.

Participant ID	Inductive theme: Develop menus – creators and inventors of food offers.
CH-002-F	So I would say to provide and, well, I was gonna say high quality to the quality of the restaurant and so to provide to develop and create an execute a food menu that's relevant for that business
CH-008-M	So is Chef is a sort of inventor that comes that finds, you know, this beautiful raw produce and turn that all this into something that people can enjoy and then goes into the table. That's what the chef is.
ED-005-M	the restaurant, and as an entity called a restaurant is to create business for somebody to sell food to the public and the chefs role of that is to put the food in that restaurant to certain parameters, be them business guidelines, business parameters or customer needs and expectations Umm yeah, that's in its most basic essence. In a more societal approach I think the restaurant is great vehicle for social exchange and meeting is great place to meet it's a great place for people to come together to enjoy food.
ED-005-M	I think if you delve more into that it is to create a culture and a society around food.
IS-002-F	So I mean on a very basic level, it's to prepare the food for the customer, but their responsibility in doing that is enormous because it touches every area of the business because it's about, you know, because what they, what ingredients they are putting on the plate, how they're prepared, what equipments used to prepare at the portion sizing, the plating, the way it's described, the positioning on the menu.
IS-002-F	So I would say yes on, on a very basic level as preparing the food, but actually they influence kind of an enormous amount of that. My understanding is that most operators have a large portion of that footprint comes from the kitchen itself rather than the restaurant or the, you know, the area.
IS-003-M	t chefs, if you, if you look at the average restaurant, they are the creators, they are the people that will put the the menu together, the dish together, work with ingredients depending on whether it's a privately owned or group home restaurant, the their ability to be able to manipulate and work on the menu.
IS-003-M	There are two types of chefs. There are those who are creative and those that are more logistical that are just go in and and do the job.
IS-005-F	Providing something that's memorable that can't be replicated ideally can't really be replicated very well at home and provide it in a in a convivial atmosphere. Umm, where the person feels relaxed enough to want to go back and to tell their friends about it as well
SM-001-F	And I think chefs are like the best change-makers, and that's not to stereotype chefs.
SM-002-F	they need to understand kind of what those customers are wanting and looking for from that restaurant and design a product, i.e. a menu and made up of

recipes that that's gonna get those customers to keep coming back, which means that they have to umm, I think carefully about the type of thing that goes on the menu and ensure that they're getting the best possible value from their suppliers and those and raw gradients are going to produce great, great tasting products

Participant ID	Inductive theme: <i>Manage the logistics of food preparation – food safety, procurement, stock keeping.</i>
CH-005-M	The basic role of a chef in a restaurant is to provide food safely and as nutritionally as possible and and with the imagination and flair to please or or raise expectation of of of a paying customer. That's primarily the role of a chef.
CH-007-M	I'd say the three main things is prep in the kitchens are been and is prep service and kitchen hygiene
CH-007-M	Hygiene covers both like the cleanliness and the kitchen, as well as like that cleanliness of the chefs and the and making sure that the food the staff is rotated correctly and and. Yeah. And most kitchens, it's the manager's job to make sure that's happening, but it's also the chef's job to do it. And it's and basically anyone job any chef in the kitchen hasn't responsibility to keep it clean and to make sure it's operating hygienically.
CH-008-M	Generically as Chef is a the role of a chef is one of the core role in a restaurant, as he is making a or transforming the produce that comes through the door into what is not at the end the final product and what the end cost at the table.
ED-004-M	to be a good chef isn't just about making pretty food, it's about understanding what the cost to it is and the cost isn't just the price that you're paying for that gradient. It's the cost of where it's coming from, how it's farmed. All of these things have a that and a part to play, but obviously the higher-end product with the more expensive it is going to be.
IS-003-M	There are two types of chefs. There are those who are creative and those that are more logistical that are just go in and and do the job.
SM-003-F	I guess this is very like creative aspect to it. And well, from my perspective, a lot of like sustainability considerations, so like stock management, I think there's like a big element around like team building and team effort and integrating people or like involving people. Along with that, there's aspects of waste management, non-food waste. I guess there's like the aspect around. They're like embedded, like carbon footprints of different ingredients. There is animal welfare considerations even depending on how much they're involved with kind of like the supplier side of things like I think it really depends on the type of business because I guess the smaller the more you tend to have your fingers in different.

Participant ID	Inductive theme: <i>marketing spokesperson - social media and brand engagement</i>
CH-002-F	And I think it's about upholding like the individual standards of the business and sort of being relevant within the sector.
ED-004-M	You've also nowadays you kind of have the badge of what you're restaurant stands for. And so it's making sure your customers are aware of what you're trying to do and you'll staff are following that and just by ticking that box, the people that will come to your restaurant will know why they're coming.
IS-004-M	Uhhm I think the role restaurants is a bit has the role of chefs has changed a little bit before they used to be sort of never seen back of house just making food now I feel like chefs enjoy a celebrity. Kind of culture the chef can sometimes make people come to the restaurant, so it's almost like branding. The chef is part of the brand and I think nowadays more and more consumers are concerned with not just the flavor of the food, but the story and part of the story is the sustainability message of it.
IS-006-F	So the role of chefs is really to UM, in my mind, be responsible for the creative process of UM, what comes out of the kitchen it work with both teams to collaborate and ultimately to kind of set the scene of the concept of a hospitality business. So the chef plays a really important role really in crafting and shaping and bringing to life the vision of the business

Participant ID	Inductive theme: <i>The role has changed from invisible to visible and from authoritative to empathetic leadership.</i>
CH-005-M	The basic role of a chef in a restaurant is to provide food safely and as nutritionally as possible and with the imagination and flair to please or raise expectation of a paying customer. That's primarily the role of a chef. Umm, when you're talking environmentally. Now that has to be an aspect of what's involved in the start and to the after the finish of the meal. So and everything that you do within that has to let's be in as environmentally friendly as practicality can make it. That's what I think.
CH-009-X	when you become like a head chef or and there isn't a good training around systems of work either. You just have to pick up the one that is working there. But umm, I guess like I think that it's also the role of chefs to take it upon themselves, particularly the higher up they get to educate themselves a little bit about these things and because it has such an immediate impact on the people that they're working with, if they don't know how to manage people,

ED-003-M	we go from a very archaic and kind of epitomized by a British Celebrity Chef in boiling point some 20 years ago to where we find ourselves now with the likes of more recently female Michelin star chefs who would be more and I'm talking at the very sort of top end high end but we need to move away from the very brush, archaic sort of brutality method of management to a much kinder, more nurturing. more wait ... empathetic, empathetic method of, you know, to be more and empathetic and understanding of people's needs, people's needs very different
ED-005-M	I think the role of the chef is somewhat changed, particularly in last say 5 to 8 years and then even more so over the last maybe 100 years from being quite subservient back-of-house role of producing food to now almost being a marketing spokesperson for food. You know, they've taken a lot more of a Celebrity status if you like
IS-002-F	You think actually that decarbonize a staple that everybody relies on and we can't shift diets fast enough. So that could be a really great solution and you know and also from that chefs skills perspective, you cook it like a piece of normal meat cause it is a piece of meat. You know, it's not one of the problems of uptake. I think sometimes of more plant based options is because I ordered them frequently and sometimes they're prepared really badly because people aren't familiar with them. So that is so good about the training. I didn't say that at the time, but I think they need to be trained on more plant based like how to make plant based delicious and amazing. And also if they are gonna use some kind of analogue product that how to make that delicious and amazing rather than, you know, dry and charred and unpleasant. Ah.
IS-002-F	So they're including more KPI's around things like food waste, but all to see other carbon or environmental impacts, because of course it's not just all about carbon, but uh. So yeah, I think I I think it's patchy. I think in some places it's really good. People get it and then other places they don't, they don't in it.
IS-003-M	The changes in attitude from the head chefs, if you look at some of the oldschool head chefs that would run dictatorship, like kitchens, that has also changed because people won't put up with it. Employees now want a lot different to what they wanted 10-15 years ago. They want to feel part. They want to feel empowered, they want to be part of something.

IS-004-M	Um... I think the role restaurant is a bit has the role of chefs has changed a little bit before they used to be sort of never seen back of house just making food now I feel like chefs enjoy a celebrity. Kind of culture the chef can sometimes make people come to the restaurant, so it's almost like branding. The chef is part of the brand and I think nowadays more and more consumers are concerned with not just the flavor of the food, but the story and part of the story is the sustainability message of it.
IS-004-M	Yeah, I think the sort of brigade style of working in the in the kitchen was the traditional way. And then you have ranks and you listen to the person above you and you don't really have a lot of input. Your job is to execute and perform umm now, that might still be true, but this brigade style of people higher than you and you have to answer to them and they can do whatever they want is changing there's more expectation of a better work life balance and community in the kitchen

Participant ID	Inductive theme: <i>Different chef identities – chef manager, chef-owner, media chef, freelance chef/entrepreneur chef, line chef, development chef, different identities in different subsectors</i>
CH-002-F	But I think obviously different chefs at different levels within a kitchens are generally quite hierarchical places, so different people will have sort of different responsibilities and I think, yeah. Essentially, it's about making, designing, and making the food and timely manner to the high, you know, to the standards required by that business and so on.
CH-003-M	So I chef in the restaurant has got a lot of different roles starting from the Commis chef. Who is just there to prepare? Bring the vegetables from the fridge. Cut it to different sizes. UM, follow the basic instruction wash the salads and do the basic prep look after the health and safety. Then there is senior chefs de part or Demi. Chef who is taking on the preparation from a Commis chef who is doing more to the same potato that the Commis chef has cut he's marinating it, or he's frying it. Then there is chef de partie. The chef the partie basically means a person who is in charge of a section, so there is hot section. There is cold sections. There is pastry section, there is a buffet section. So the chef de partie is in charge of that particular section, he's taking on the role as leader of that section and he takes the prep from his junior chefs and he puts them together and he's in charge of the section.

So he's making sure, let's say, Caesar salad someone has washed the leaves.

Someone has washed the accompaniments that go with it.

Someone has cut the cheese so his job is to ensure it looks exactly to the spec that has been described for that particular plate.

Then on top of it, him are the management team of the kitchen, which are the junior sous chef, sous chefs, and executive or senior sous chefs.

They manage the whole kitchen.

Uh, in the operational day-to-day running, and these chefs, they look after the whole kitchen from a management point of view.

So they're looking after the roto.

They're looking.

They're ensuring that the standards and specifications are kept.

They're ensuring there is no health and safety issues.

There is no hazards that are lying around in the kitchen.

Uh.

They're ensuring every single plate that is going out to the customer is being looked after and it's exactly according to how it should be.

There is no.

Mismatched ingredients on it.

Something is not cooked or something is not overcooked and.

Yeah.

Then also they are looking after the staff is coming on time.

If someone is sick, how they can fill that role as well?

So basically, operational day-to-day charge is from junior sous Chef to executive and senior chefs and senior sous chefs are filling the role of exec sous chefs in terms of covering the holidays days off, but as well the sous chefs are looking up to something is not broken or doing day-to-day item or day is a big thing in restaurants, so they'll ordering everything that needs to be done, not in terms of food, but the equipment.

Anything, even from a printer role to printer ribbon paper for the computers.

So everything that's day to day, they are ordering it and staffing the rota.

So they make the rota week before which people can work.

Which days?

Uh, how many hours they allocated so this this is the role of a sous chef.

They're managing the actual kitchen,

so usually for four commies there is around 2 demi chefs and 1 chef the partie;

for five chef de parties there is around one senior sous chef or sous chef;

CH-009-X

Actually, when you think about it, I mean, it's not just the cooking and I guess also ensuring like a safe place to work for themselves and the people around them and being kind of like vigilant to changes in like maybe even in things like, you know, being up to date with like health, not like health and safety law and training and all that kind of stuff, but also just

	making sure that the and social environment and the physical environment that people are working in is like fit for purpose and like doesn't drain people really.
CH-009-X	I guess you know restaurants exist for different with different sort of aims, I guess like they exist with different aims but that's how I think I like to approach things as a chef
CH-009-X	when you become like a head chef or and there isn't a good training around systems of work either. You just have to pick up the one that is working there. But umm, I guess like I think that it's also the role of chefs to take it upon themselves, particularly the higher up they get to educate themselves a little bit about these things and because it has such an immediate impact on the people that they're working with, if they don't know how to manage people,
ED-002-M	I think they have a lot more responsibility than they realise themselves sometimes. And then the public realize, but primarily employers just. I sometimes get the impression employers just think they're there to. Well, obviously they are there to make the money They're there to carry our service and do all the meals on plates,
ED-003-M	And I would say that's predominantly what the role is obviously to also showcase their skills to the customer, but obviously that also there's so many different chefs in different types of restaurants so I would imagine there's slightly different roles there and regards, you know, some chefs will have it will be their role to showcase their passion and their dedication it might be and accompany a chain of restaurants that they are just making sure that they're complying with their policies and their views.
ED-004-M	that's a great question because it depends on the restaurant that you go to and are you going somewhere to load up and eat and are you going for A to eat and for company and or are you actually going just with that experience. And so there are three different niches in there.
ED-004-M	And so what is the restaurant that you're going to providing and there are family restaurant chains for instance and not always. I mean, a lot of these places now, they're middle of the road and but they're chips. They're steaks, their baked potatoes. There isn't that traditional cooking, more hearty style of cooking and so in some ways you're getting that blend of fast food at the at the low end is really kind of halfway into the middle ground, and even on the middle ground, you're still gonna have a percentage of fast food items because that's what the people want.
ED-004-M	Uh, they don't wanna eat for a long time. And then as you move slightly further up, your price goes up. You are then paying for the art and the flavours and the and the products that you're having. So the high-end can afford to have the really quality products the chefs are trained and know what they're doing. But as you come down the chain, you're not looking at people that skilled labour, so Fast-food chains, you might have someone that's straight-out school or maybe even still at six form.
ED-004-M	And if you work in a pub, you might have someone that's just starting their career and they're working the grill or the vegetable section. And so the vegetable section is really coming and prepped lot of the time. It's probably already pre-blanching and then all they're

	doing is reheating it and then again you move further up and then you start getting into the realms of OK. I started in in these two areas, which is sometimes with the students I've reached this point
ED-004-M	So I've worked in a pub, I said it's might be a gastropub. UM and again the gastropub might be doing a fusion food. It might be doing something else, but again, you're looking at maybe. Two or three out of 10 might be a good pub that has a bit more fusion, so locally to me and we have a very, very busy pub and when we first moved to the area about 6-7 years ago, they were full on gastropub you could go in there and it was all fresh made and it wasn't burgers.
ED-005-M	Umm, because there are so many different roles in being a chef, a professional chef also has to do a lot of HR, finance, marketing, a lot of business skills around being a chef, particularly head chef or sous chef. You have to have a lot of non-culinary based skills to undertake that role, but it still boils down to being cook with a pan on the stove and yeah.
IS-002-F	The High Street is and then the responsibility within that is often in many development teams, and whether that's the chef or whether that's and.
IS-002-F	But it depends very much on the outlet how much control that Chef has. So obviously in the owner operated, you know the chef operated restaurant that Chef will have an enormous amount of control over everything and will be able to control everything, whereas your grill chef in a McDonald's or a High Street chain may have very little ability to control everything and may actually have very little skill because all they need to do is know how to reheat or flip or you know, so I think I think the role of the chef changes enormously
IS-002-F	So one of the things I find a bit frustrating is that a lot of culinary education is not focused around it's very traditional, it's very traditional menus and it's a very traditional approach of you know everything looking most the most beautiful, choosing the most beautiful products produced to go into that. You know, everything is about looking and tasting amazing and being as and often being that kind of treat experience the training my understanding you'll know more. Having been through it, but my understanding is that the training is sort of more about the the eating out is a special occasion or as a not your, you know, people aren't. It doesn't seem to me that people are trained to be a contract caterer. They're not trained to be, you know, work in a school canteen.
IS-003-M	It's a very rare skill, and some are better than others, and there are some people incredible chefs that have the ability to be able to do it for restaurants and those that can actually do it for different sides of the industry. As in scaling up for events, working with supermarkets, working in airline catering, where you have to look at the ingredients and everything you do and work with and the taste and the feel of the food. So yeah, chefs are creators.
IS-003-M	There are two types of chefs. There are those who are creative and those that are more logistical that are just go in and and do the job.

IS-000-F	so I've had again because my background in procurement I've had I've I oversaw projects but for the past sort of 10 to 12 years, I've not personally been involved because I've had a team, but I would say that dependent on the structure of the business, you usually have a cost controller. If it's like a hotel-style restaurant, who would be responsible for controlling costs and ensuring that GPs are made or achieved. You'd have obviously procurement, you'd also have a chef, and there's usually OPS manager OPS director involvement because they're responsible for the P&L and what I've found in historic historically is that it's usually a team effort, but requires people or in different parts of their business to understand how they can impact change
SM-001-F	So I think now you know, we've almost had to create a new role within kitchens, which is administrative chef and really the role of like the Exec chef now is admin.
SM-003-F	I guess this is very like creative aspect to it. And well, from my perspective, a lot of like sustainability considerations, so like stock management, I think there's like a big element around like team building and team effort and integrating people or like involving people. Along with that, there's aspects of waste management, also non-food waste. I guess there's like the aspect around. They're like embedded, like carbon footprints of different ingredients. There is animal welfare considerations even depending on how much they're involved with kind of like the supplier side of things like I I think it really depends on the type of business because I guess the smaller the more you tend to have your fingers in different.

Environmental values

Participant ID	Inductive theme: <i>Pro-environmental behaviours recollected but not values.</i>
CH-003-M	Environmental values and I'll give you an example. Let's say a lot of restaurants are cutting out avocados. Because avocados are considered really a health fad. Very it has got a lot of Omega oil fatty acids. It's quite healthy.
CH-003-M	So now because of this, the all these factors not in the micro way but in the macro way customers are asking to be chefs very considerate of environmental users when putting the food and reducing food waste. Now we have here started with the waste not bar. We tried to reduce some waste. We tried to measure it. How much waste we are producing every week we have to record it. We have to put it, this is part of our new. Goals for our appraisals next year.
ED-005-M	Umm, thank you and now thinking about the theme of environmental values, could you tell me if you have observed chefs expressing environmental values, either through a

	conversation or through actions: 0:8:13.490 --> 0:8:16.980 ED-005-M Yeah, hugely in broadly. So the most prominent example of that I can think of is a guy based in London, who has a zero-waste restaurant. Yeah. And I went to. I went to a talk at the being a Museum in London called Food on plate.
IS-004-M	So there are there are there are a few, especially in London and especially abroad, where I've worked like in Copenhagen, who are very rightly conscious one is, for example, from a restaurant in London and Umm, other big restaurants who have like this sort of farm to table approach, the farm to table style of dining is becoming more popular.
IS-005-F	She's very much of the opinion that it's not to do with changing the menu so much. It's to do with general practices and being aware of sustainability, kind of like all the time. So like you know, don't use cling film, umm, you know, the cleaning materials that you use, make sure that they are ecofriendly at any, any type of plastic you have any type of you know whenever you turn on an oven and make sure it's turned off for a certain length of time. All you know that the fridge is not set too high or all of those things are things that would be covered, but I think there would be other things as well. That's specific to the restaurants, particular problems and particular issues
SM-001-F	So I think I think if we separate like behaviour and actions that chefs can do, you've got kind of in kitchen practices. So you've got like energy awareness or water awareness, but also like food waste awareness. So not just measuring and monitoring food waste, but that kind of careful stock management. You know, some chefs are much better than others at that stuff.
SM-003-F	For example, maybe more the theme of, like, veganism so like especially like our pastry chef is quite involved with, like trying to reduce the amount of like dairy that goes into it. And I guess that's that is from like environmental perspective, although it might also slightly be linked to like animal welfare, but I don't really know to what extent running through that

Participant ID	Inductive theme: <i>Increased environmental knowledge and awareness in society and sector</i>
CH-002-F	So I've definitely, I would say in most kitchens it's been ad hoc discussions. Some of it has been topped down from management, but not in the kitchen, so the kitchen managers are kind of coming on.

	The kitchen managers and head chefs are coming on board. With what the organizations the businesses management are want
CH-003-M	And so again, sustainability and environmental values are something that is a growing concept. It's has started a few years ago. The newer generation is much more aware of what's the sustainability means. The older generation of chefs? The older generation of chefs?
CH-005-M	Now that the world has evolved a lot more and you need to be taken care of the a lot of things that within your environment and there is a lot of associations and a lot of background work being done to make ourselves less of an environmental impact because five stars used to have a very bad, very, very bad reputation for the amount of waste and how bad we were for the environment
CH-005-M	And I came into this job many years ago to climb the ladder. To you have to build a career at the at the time when I started in the environmental was not in in the forefront of my mind.
CH-008-M	basically I think this is something that wasn't in this industry before when I started, people were all crazy about doing the fine dining, beautiful looking place without really caring.
ED-002-M	Definitely lot more engaged with them sort of things. There's a lot of curiosity and a lot of Level 3 chefs coming to me and asking me what what I'm doing about what, what they could do next when it comes to learning, which is never really happened before
ED-002-M	We're just talking about the food, the food, the food journey, and I say how much gas that's used to produce that different things are much water was used and so on and so forth. And I just kind of would know that wouldn't be able to quote the amounts and stuff, but would know what's happening, what's, what's not good, what's great, that's not good for the environment. Well, I think that it's become very I, uh, trendy. Ohh for pair of saying that everyone is looking at that now it's becoming a bit more trendy is not quite the right word a bit more in our faces and then it's more out there. It's more marketing of whatever, and so it's definitely something I could see the industry and the groups and the big companies jumping on the bandwagon, jumping onto and saying other working GHG of our
ED-003-F	But yeah, we're having those conversations more and more, but I think it's leaning more about cost and waste through cost than waste through sustainability, through sustainable sources, possibly, yeah
ED-005-M	I mean, I think it's quite, I think it's quite regular and common conversation between chefs about. And the effects that our industry can have on the environment.
IS-001-F	Yeah. I think part of it is again, as this trend of sustainability comes through and you know and it's, you know, particularly even with meats, it's that you know from nose to

	floor or nose to tail principal. So it's great to train, you know, young chefs or any chefs coming into the industry those skills.
IS-001-F	More recently, because it's a little bit more trendy, you know you have the chefs coming through, you know. London fine-dining chef and his place and there's so many other chefs as well. Umm, he's just one that I was sort of thinking about, but it's trendy. It's cool to actually, you know, to be sustainable and share that message. But. It's still only a small snippet and I think you're day-to-day operations where you don't have. Master chefs so you're not having those guys that are wanting to join, you know, Salon Culinare and Chef Guild, and all of those and actually become really high-end trendy, you know. Chefs within sort of Michelin star restaurants or anything like that. I think the day-to-day operations, it's not there. I'm majority of those guys and girls during the environment because.
IS-002-F	And that's the kind of thing people have been saying to me for many years for many different industries, not just hospitality and food service. But I think the companies are now acting on that much more consistently in terms of making mandatory saying sustainability training more important, more overtly communicating companies values and missions. And their net-zero strategy and how that might actually apply to peoples roles a bit more clearly.
IS-002-F	I think it's growing, but so I wrote a report a couple of years ago called in Empowering Sustainability Heroes. Because I was trying to make sure everybody realizes the sustainability was there, like everybody's job, it's everybody's job.
IS-003-M	Now the guests and customers are a lot more aware and look for sustainability and they look at the environmental impact. If I look at a number of the clients I work with. I've got one client in particular who are an events company, who if I if I was with their CEO 5-6 years ago. He would have totally different view to now where as now their transport is becoming electric. Everything has completely changed because their clients expect then to be taking a view on the industry in terms of wastage, in terms of usage, in terms of sustainability, in terms of energy. This has completely changed and is one of the key things that we're facing.
IS-004-M	So there are there are there are a few, especially in London and especially abroad, where I've worked like in Copenhagen, who are very rightly conscious one is, for example, from a restaurant in London and Umm, other big restaurants who have like this sort of farm to table approach, the farm to table style of dining is becoming more popular.

SM-001-F	I look back kind of five years later, and I think, wow, stuff has changed a lot really quickly
SM-003-F	within sustainability that we look at. UMI think more and more, but this is not really like my cup of tea and I'm not sure but I feel like because it is so much more a topic now than it maybe was like 10/20 years ago

Participant ID	Inductive theme: <i>Drivers linked to traditional chef values (seasonality, quest for the best produce)</i>
CH-001-M	CH-001-M: And it's like, OK, we're not allowed to use. We shouldn't use octopus because it can't be measured, so therefore it's on the red on the. Marine Stewardship Council. What's it Is it called? The table? Doctoral researcher: Yeah. CH-001-M: But then if you catch it from, I don't know if you've got a day boat and it's going now in Cornwall, and then you've got it on the menu at Bristol. How does that make? Is that OK or is it? you know? Doctoral researcher: yeah. CH-001-M: Yeah. So yeah, for his writing menus is very difficult. Some difficult, but it's tricky.
CH-001-M	Why we still think it's ok to use. You know, we're still ordering. We're still getting things from. You know that's got air miles on it and stuff like that, but then, you know, there's a counter argument to that to say. You know. People. You know, everywhere sells bananas. Do you know what I mean? Everywhere's got. Almonds everywhere using avocados. They don't come from the United Kingdom. So it's like, you know, when it's like, you know you when you're talking about swordfish and the tuna is like, why are you using that so like well. We didn't ask the fishmonger to source it for us. We asked the fishmonger what they had, and they said they had these. These species of fish, and it's like, OK, well, yeah, people love to eat that. So why we're not gonna put it on the menu. There's like, you know, we're actually working against being sustainable because of those items on our

	our menu. So it's like. It's. Yeah. You see what I'm getting now?
CH-002-F	They might not have come from that background of knowing, you know what is and what isn't more environmentally friendly because I don't think that's necessarily taught. And but some people might have their own, like passion and interest
CH-005-M	Just to follow up question in terms of the foods you're putting on the menu, you touched earlier on this distinction between plant protein and animal protein. Is there anything you've come across either your business is doing or other businesses are doing which would also influence the climate impact? If you like of the food. Umm, I think so. Really, it's like, you know, a lot of a lot of restaurants. They grow maybe their own herbs in a little greenhouse thing. Umm. You know these evo is called Evogrow where they have likea and that then or you cannot have your own hive bee hives you know produce your own honey whether that's you actually are get someone to do it in the north of London because you're in the center of London you can't have be swarming everyone and you probably don't have a very good roof and then you know you you've got your beehives next to your swimming pool so that's not gonna go down very well. So yeah, there's a lot of a lot of restaurants I know like to hire like the London Honey Company or something like this to produce the honey that they're gonna use or you have. Uh, you can engage with the dairy down the road.
CH-005-M	For as a chef, a chef should also understand where the food comes from, and he can't be like, you know, always having mango on the menu the whole year round. You know, because you know, he's got a lot of air miles or. You know, there has to be a season with things that you you don't get it unless it's really, really in season.
CH-006-M	I think you can only really appreciate where food comes from and when you've been a part of the process of producing that food and that's also one thing that I working with now
CH-006-M	Once they realized the work that goes into it, like if they spend the three month growing the potatoes, they're much less likely less likely to set #1 they're much more likely to store the potatoes correctly because that's number one that's one bit of knowledge that's missing is that understanding how to store food things default setting for a lot of people, even chefs in the world, like there's a lot of nothing knowledge, a lot of it goes into places
CH-008-M	And also when very material someone does has to be done by having like you know you can't like just show at that cow because you want that place to be very vegan so

	you can't just show that cow and be like, look at what you did so that that was also doesn't have. So it has to be done like you know, by explaining why famine happens, why poverty happens. Why? Why people at the end of this suffer? Because that people at the end of the day and animals will suffer if we don't become sustainable. So how our everyday decision on what we do, how we run our business or how we actually have, so how what we do in our private life can have an impact on the environment. So visual visually
CH-008-M	So are we like a local farm business we have a like the main question is always do we have a farm because that's what people think like we have a farm and we we have some cows. So we go there, we make them or, you know, but I can explain them that as big as we are. It's crazy that we never somehow, but it's actually difficult and not everybody that wants to be sustainable needs to have a farm or needs to have allotment to, you know, cultivate that that stuff.
CH-009-X	using things that grow native to the shores of the UK and finding things that are not used that much but are actually in abundance here and like that to reduce their carbon footprint. And I think particularly the other one as well, they've gone off and done loads of interesting things and the head chef there. He runs also does like an Instagram page
CH-009-X	What else would they do so they were doing some other quite fun things there? They also had, like, a garden on their roof, which I guess just cuts down on transport costs and that kind of thing and it was all like, you know, it was all done organically and whatnot as well and so I guess those things really, I suppose also working seasonally. I know that when I work in the kitchen, I tend to work seasonally.
ED-002-M	I think about like mostly they bring it back to. I mean, seasonality is always the bigger talking point. I do a lot with telling them about, like I will always pop in of it in there
ED-004-M	So there is the slow food movement that started in the 80s in Italy. There is a slow movement, slow food movement UK and this is all really to get people back involved with site from young age working with farmers, getting kids to go to farms, getting kids to understand where the food comes from, getting kids cooking, understanding about honey, why nature is important.
ED-004-M	Fish. Salmon but trout maybe, and there's so many different fish, but there's available to us, especially freshwater fish. And but we don't eat them. Too many bones don't like it if we're in northern European Pike perch, my favourite one of my favourite fish is, in particular, Zander. Uh, like, I love it. But you can't get it. We don't want it. We don't want the other things and so we eat the same specific fish over and over again and so that's narrowing the field that we want the bycatch from the fishing. When they do the fishing procedures, the fish, that's too small cause it doesn't meet the standard that we want. It's dead. They throw it back and we using that years ago we would do that and this is where it goes back to education.

ED-005-M	there's another chef that I worked with who cooks cultural ethnic foods and he speaks a lot about farming fish and the effect that that has in terms of giving species enough time to replenish. In smaller fish, you know, baby fish grow into grown-up fish. No, I spoke with him a couple of weeks ago about this. Yeah.
IS-001-F	So I can't give you an I could give you an example of that, sorry. So I would have worked across my career. I've worked with lots of different, you know, cultures and people from all different places in the world. And I remember one day. I was throwing food in the bin. And it was actually a junior chef. It was just somebody who had recently come in as a commis. And I think before that they'd always worked front of house. And. 0:20:40.610 --> 0:20:40.980 Doctoral Researcher And then. Umm. 0:20:41.450 --> 0:20:58.380 IS-001-F And he stopped me. And he says that food doesn't need to go in the bin. And I says, I says it does have to go into the bin. It was food safety, I think potentially a piece of plastic or something had been found in the container. And he says, but we know that that piece of plastic is. 0:21:3.290 --> 0:21:3.610 Doctoral Researcher Yeah. 0:20:59.520 --> 0:21:6.150 IS-001-F Top of you know of a mayonnaise tub or whatever, he says. You know, we know that that. We find the whole pace. Neither was ongoing issues and we had umm, you know, foreign body incidents before. So we were very robust on our policy on it, so it was the whole thing, had to be discarded to reduce that potential risk. And, you know, he said to me. Where I come from, he says. You know, the majority of people are starving. You know, we only have one meal a day and here we are quite happy to throw this food in the bin. And I said, look, I'm really sorry I have to do it. And I went away and I sat in the office and I thought about it. And I was like, no, you're right. 0:22:12.910 --> 0:22:13.180 Doctoral Researcher

	can. 0:21:54.190 --> 0:22:25.30 IS-001-F You're really, really right. And what you're saying, and I don't want to make my team feel like that, that their opinions don't count and they're, you know, all that. So I actually went back up through and our and I was, I was very privileged in the role that I was, that I had a direct contact to, you know, health and safety directors and things like that. But I went up and I was like, OK, we put a bit of a matrix in here. Can we put a bit of a change to the protocol that if it is something like that that we know?
IS-004-M	And that's sort of like a a good point, maybe not relevant to the research, but like the the A conversation that is happening is about the how sustainability is kind of going back. It is tied to the colonization of food because like a lot of ethnic and indigenous foods were naturally very like glocal and tailored to where they were. They were made and then through Colonialization and also through globalization like this, this food spread and now it has to be a different shape. It has to adapt to the impacts that were not originally there their fault, although now it's a collective responsibility. So like there is some kind of like movement on like why should cultural local dishes have to change because you know have after having been affected by external influences.
IS-004-M	So that goes hand in hand with chefs who are more connected with the impact of their ingredients. So it's more and more common to speak with chefs about the impact of their food.
SM-001-F	Maybe what I would call like traditional sustainable values, so like local food, seasonal food, that kind of provenance piece of like where the food comes from.
SM-003-F	For example, maybe more the theme of, like, veganism so like especially like our pastry chef is quite involved with, like trying to reduce the amount of like dairy that goes into it. And I guess that's that is from like environmental perspective, although it might also slightly be linked to like animal welfare, but I don't really know to what extent running through that

Participant ID	Inductive theme: <i>Opportunity to innovate and a unique selling point (USP) driven by chefs' curiosity, creativity and the need to stay current</i>
CH-009-X	using things that grow native to the shores of the UK and finding things that are not used that much but are actually in abundance here and like that to reduce their carbon footprint. And I think particularly the other one as well, they've gone off and done loads of interesting things and the head chef there. He runs also does like an Instagram page

ED-002-M	we're just talking about the food, the food, the food journey, and I say how much gas that's used to produce. That different things are much water was used and so on and so forth and I just kind of would know that wouldn't be able to quote the amounts and stuff, but would know what's happening, what's, what's not good, what's great, that's not good for the environment. Well, I think that it's become very I, uh, trendy. Ohh for pair of saying that everyone is looking at that now it's becoming a bit more trendy is not quite the right word a bit more in our faces and then it's more out there. It's more marketing of whatever, and so it's definitely something I could see the industry and the groups and the big companies jumping on the bandwagon, jumping onto and saying other working GHG of our
SM-001-F	But what I find with chefs is that as soon as you've convinced them that it's something worth thinking about, like, overnight, their whole mindset can change and they go away and create things that you never even thought of, that you never thought were possible. And with such determination and interest and it, it's so nice to see and it's also nice when you finally feel like you've flipped that coin and you've got someone on board, yeah.
SM-001-F	I learnt so much about how hospitality businesses actually work. As well as like how so many people are innovating about sustainability and restaurants.

Participant ID	Inductive theme: <i>Enablers vary depending on business (catering vs hotel vs restaurant)</i>
CH-005-M	So I think the thing is the information all of the information is readily available. You know, if you if you wanna look up how long it takes to grow to a cocoa bean. If you wanna look up the process of how to get chocolate or you can just google it with it. Something is missing because if people would have knowledge is there, but people don't seem to want to look for the information. Uh, I think also that depending on the type of environment working in we've all been very used to, we don't understand like a lot, we don't understand seasonality, we we we're so used to being able to get whatever you want whenever we need it. And again, that's a once you have that mindset it imparts changes no are there are there are restaurants that I've seen in the last couple of years. There's been a couple of quite a few restaurants where they stop paying a menu, a menu that comes out of every day so they change the menu every day based on what we can get, and that's not a new concept, but it is becoming more common and that's requiring to understand uh, which is the ingredients are in season now, so we can get them and they're at their best but there's many restaurants that don't understand it. And frankly, from my perspective, I think there's there's gonna be chefs that are in it for the long haul and want to be and if they wanna make a name for themselves in the

	industry, they will have an interest. There's a lot of chefs that also just have a job to do at the end of the day and there is a system put in place for those chefs I just want to do a job at the end of the day.
CH-006-M	Now that the world has evolved a lot more and you need to be taken care of the a lot of things that within your environment and there is a lot of associations and a lot of background work being done to make ourselves less of an environmental impact because five stars used to have a very bad, very, very bad reputation for the amount of waste and how bad we were for the environment
CH-008-M	But then, in a place such a where I am or such a such big as like a big hotel, especially big hotels, when they cut it to a lot of people and maybe a lot of people at the same time, they find it easier to cook things by method of sous-viding or things like that that would use single use plastic and then they just received that and for them is easier when they do a mass catering for someone they just it's easier to work that way
CH-009-X	So I guess we're visiting certain restaurants such as a well-known zero waste restaurant, or this other sustainable restaurant, which is a zero waste restaurant where everything they do, they have the bin in mind and this one in particular like is they both do.
CH-009-X	There is very little kind of discussion around what is the best way that we can avoid doing these things and that's not how I like to work because there is no guidebook on these sorts of things and actually the information is quite sort of like disparate and sporadic to find, there isn't like a consensus on a good way of managing these sorts of things in restaurants. You just have to make up as you go along. OK, it's useful to find out everyone else's opinions, cause somebody might just have a really good strategic brain. That's able to think about ways that we can reduce these things without having to be the person in charge. But because restaurants are very hierarchical, frequently, it's often that the head chef and all restaurant manager decide and just tell everybody else.
ED-002-M	We're just talking about the food, the food, the food journey, and I say how much gas that's used to produce that different things are much water was used and so on and so forth. And I just kind of would know that wouldn't be able to quote the amounts and stuff, but would know what's happening, what's, what's not good, what's great, that's not good for the environment. Well, I think that it's become very I, uh, trendy. Ohh for pair of saying that everyone is looking at that now it's becoming a bit more trendy is not quite the right word a bit more in our faces and then it's more out there. It's more marketing of whatever, and so it's definitely something I could see the industry and the groups and the big companies jumping on the bandwagon, jumping onto and saying other working GHG of our
ED-003-F	And also I mean obviously, yeah, conversation awareness and chefs have big voices. So it's about possibly key people within the industry. Talking now but talking about it a little bit more. UM, it's about education, but changing the way out of, you know, curricula within schools coming up.

ED-005-M	when you go into a large hotel operation or a large catering operation, it's not necessarily the head chef that's in charge of that. It might be somebody's office based for instance, but you go into a much smaller brigade as a much smaller operation where you've got maybe just two or three chefs in the kitchen and yeah, it would be more than chef's ultimate responsibility. But I do think everybody in that brigade should play a part in food, food waste reduction. And I'm, you know, monitoring that use of food
IS-001-F	Restrained on them in regards to specifications and UM, you know quantities and quality and all of that, that that flair, I think to a certain extent is a lost in a big percentage of the environment. And when you don't give people the chance to be creative or innovative, innovative can't get that word out. Then they lose passion. And therefore they do they still do a good job? Not everybody does, but the majority still doing good, good job because they care and they want to do quality.
IS-001-F	The saying that the most people say is food waste is, you know, food waste reporting or recording and Reducing it is so easy. Well, if it was so easy, we'd have done it. We've done it ages ago, you know. So don't undermine it by saying it's so easy. The principles are easy. But the complexity of every catch and being different and every team being different, there's so many variables that impact it. You know, I was talking to somebody this morning whose client has told them, you know, it's written into their KPIs, that they must have full counters, a choice of every item until they stop service.
IS-001-F	But I actually in an environment at the minute where everybody works where there is, you know, specs, allergens, calories, they're not getting the chance to use those products and say, OK, well, today I have loads of stuff left. So I'm gonna make a kimchi out of it because they don't have a recipe for that. They don't have the nutritional or allergen information to back it up. So therefore it doesn't end up on a plate. And that's lovely. And a high-end restaurant where
IS-002-F	I think the corporates you know the big people because they are under the spotlight and have to report, but I think the independents they might, they don't, you know, especially sort of this smaller chains, the SME's like the Curry houses or whatever you know they just they just don't understand it. It's they're so busy making it living, it's not really. It's not a deliberate thing, but it's just. Doctoral Researcher Yeah. IS-002-F It's too much to do when they're just trying to keep their heads above water.
IS-002-F	Another global contract caterer, but a really fore runner in this space for a long time, done loads of work. You know they're green and lean menus and they introduced years ago with WWF,

	where really far signed at the time. So you know, they've been doing work, but all of the contract caterers now are doing it, you know, names of contract caterers they're committing to, you know, having X amounts of their menus as plant based or plant focus or from regenerative farming. You know, another UK contract caterer, obviously, another Guardians of Grub ambassador and all that amazing work on food waste reduction there. So I think I, I do think the contract caterers are kind of exist in their own little space of actually on the whole doing quite a lot of good stuff around decarbonizing their menus and.
IS-002-F	And they're very different things. And there is lots of businesses and organised out, not organisations out there that say, you know, we have a sustainability plan. We have a food waste management process and here it is. You can look at it on paper, but if actually you go OK, I'm coming into your kitchen to have a look at it. 1:18:0.150 --> 1:18:4.220 Doctoral Researcher Umm hmm. Umm. Yeah. 1:18:4.700 --> 1:18:34.10 IS-001-F It's sitting dusty on a shelf in the chef's kitchen, and it's not, you know, it hasn't been touched since the day it came in. We're actually, if you invest the time and embed the skills, then it will have an impact because that's all well and good at the minute. We're all talking about going. Yeah. You know, 20-30 seems so far away. Well, actually, it's not. And in a couple of years time, everybody's gonna be panicking. And if mandated, when mandatory reporting comes in.
IS-002-F	But I'm speaking to a QSR[AZ(R35)] chain a while ago and he was saying, yeah, you know, we put all these kind of vegetarian and vegan options and the money is. But you know, they don't sell that much. They're not our big sellers, but we need to have them because it's the big market trend, whereas you do. But then you also get them buying things like one of their new chain restaurant[AZ(R36)] acquisitions because it has a great big vision, you know? Vegan/Vegetarian offering and you have other QSR[AZ(R37)] making so much of their menu, vegetarian and vegan, so there are High Street chains that are doing it really effectively. Hey umm by rebalancing or, you know, promoting the plant based options and making it about delicious, nutritious, enjoyable treat without majoring on the carbon or the lack of meat?

IS-005-M	it's really looking at chefs from different sectors of the industry because more some sectors are more are affected more by sustainability and waste and others restaurant I think are effective to degree, but event catering is more effected, is more effected because of the amount you've got to produce and also you may not have an event for a few days. So restaurants are able to negotiate their way through this a little bit better than restaurants.
IS-005-F	She is offering sustainability training for restaurants and you you might be able to find it on on the website by just simply looking
IS-006-F	so I've had again because my background in procurement I've had I've I oversaw projects but for the past sort of 10 to 12 years, I've not personally been involved because I've had a team, but I would say that dependent on the structure of the business, you usually have a cost controller. If it's like a hotel-style restaurant, who would be responsible for controlling costs and ensuring that GPs are made or achieved. You'd have obviously procurement, you'd also have a chef, and there's usually OPS manager OPS director involvement because they're responsible for the P&L and what I've found in historic historically is that it's usually a team effort, but requires people or in different parts of their business to understand how they can impact change
SM-001-F	But the world of like catering and restaurants is so diverse, and it's like every intervention, every problem has its own intervention.
SM-001-F	So I guess it probably you know like when I was at University, the Restaurant. I was working for was actually a member of the Sustainable Restaurant Association. So even when I was just like a waitress at the weekends, I was still aware of what it meant to be a sustainable restaurant. And the restaurant I was working at, although it was a burger restaurant, was really focused on that kind of local seasonal Sussex piece.

Participant ID	Inductive theme: <i>External influence (Management, customers, accreditations)</i>
CH-002-F	So I've definitely, I would say in most kitchens it's been ad hoc discussions. Some of it has been topped down from management, but not in the kitchen, so the kitchen managers are kind of coming on. The kitchen managers and head chefs are coming on board. With what the organizations the businesses management are want
CH-003-M	So again, there is a lot of factors behind the environmental values which are corporate company is taking responsibility on and passing it down, making it goals for the junior managers for them to be aware of what's happening in the industry.
CH-003-M	So all these are marketing stories that we are starting to create now is shifts that the customer wants to hear that you know the food that they see on the plate has been locally sourced and sustainable locally is also because people are starting to understand the local seasons.

CH-003-M	So now because of this, the all these factors not in the micro way but in the macro way customers are asking to be chefs very considerate of environmental users when putting the food and reducing food waste. Now we have here started with the waste not bar. We tried to reduce some waste. We tried to measure it. How much waste we are producing every week we have to record it. We have to put it, this is part of our new. Goals for our appraisals next year.
CH-003-M	So because there is much demand on reducing the carbon footprint and ensuring that it sustainability, a lot of magazines, the social media, the influencers, everyone is talking about it. If the customers are talking about it, this is what they want to hear. So it's coming, or the onus is coming back to the chefs. To ensuring this is something that they would want to discuss between themselves, between the management in the property that we are doing something about it.
CH-003-M	So this is passing on to the younger generations, not only in terms of cost. That was the previous concept of saving all this, but in terms of reducing the food waste so the younger generation is learning a lot about it, plus also all the Facebook and Instagram posts that I do and other chefs they do. This is all about awareness rather than I've done. It is about making aware. I'll give you example my this last year I did the Herb Garden and this year 25 other hotels have done. Ohh Gardens based not only based on me but just seeing that it to create awareness. People see that, yes, that's something we can do as well. And it costs really nothing.
CH-005-M	And we were just throwing it and didn't get really care. And then you were lucky if you actually ended up in the right bin at the time, you know, then he was. He was explaining how important it was that we get these things right and it was, it was only well, recently when we started to actually. Talk about this with colleagues that and we make them aware about, you know, they become to me and said, listen, are you aware that we actually get fined if we don't do it right?
CH-005-M	You know whether you have your own composting machine or you are paying the Council to take it away to recycle it and do compost or something somebody else does it for you. You you're paying for them to do it, but he's actually at the end of the day it is done or It reduces you waste, you know, rather than going to landfill or you're gonna do with

	that, you know. So yeah, I think that that a lot of education in that part of it has to be really a topic of discussion within the kitchen
CH-005-M	He's built on our green policy, is built on the fact that we need to be doing as much as we can and being as thoughtful as we can, consulting with the local environment, the waste company. Yeah, to help us with our with our program, you know, so we have, you know we have a back of house which really are fundamental for that. You know, we have a manager in about 5 supervisors now for backwards and they're the ones that look after it. They get they provide us with the tools to do the job.
CH-008-M	Where they produce is come from, but nowadays this trend shifted a lot since. For example, we have a green star, here in the last three years. Every single person that walks through that door and wants to be a chef asks for it that is why we have a green star what we're doing so
CH-009-X	There is very little kind of discussion around what is the best way that we can avoid doing these things and that's not how I like to work because there is no guidebook on these sorts of things and actually the information is quite sort of like disparate and sporadic to find, there isn't like a consensus on a good way of managing these sorts of things in restaurants. You just have to make up as you go along. OK, it's useful to find out everyone else's opinions, cause somebody might just have a really good strategic brain. That's able to think about ways that we can reduce these things without having to be the person in charge. But because restaurants are very hierarchical, frequently, it's often that the head chef and all restaurant manager decide and just tell everybody else.
ED-001-M	I think about like mostly they bring it back to. I mean, seasonality is always the bigger talking point. I do a lot with telling them about, like I will always pop in of it in there
ED-001-M	I work with the craft guild of chefs and they are always talking about how we we're almost abusing the environment. We've we you know, about how much water is to produce this. Umm, whatever. And how much the ground is being changed because of like, we're pushing more water into it or we're pushing chemicals into it and that's not good for the environment. We're destroying our land as well as the. As well as the growing potential of it, you know, there used to be a period of time when a farmer might have 4 fields and each year would lead rotate the crops and each year would leave one fallow for it to recover.
ED-002-M	I think a kind of a campaign needs to happen. Whether that's still need association with different various different stakeholders, I think really focusing on the greenhouse gas side of it is gonna help because it's the trendy you tag if you like.
ED-003-F	So if I can look at it from the college point of view, we're having that conversation right from the beginning of our courses. So talking about the welfare, the sustainability, the waste of a product all linking into environment, so you know and then going into that a

	little bit more, we do a lot of work with Guardians of Crab which is what part of WRAP campaign and there's one, you know, a couple of us that have very much into that.
ED-003-F	But I think with the courses that I for nutrition, gastronomy, food trends, there is a massive part of that is sustainability. So within that is such a huge topic. So we have sustainability, we have sustainability diet because we can't sustain what we're eating now and everyone moving to soy, we're chopping down rainforests with soy.
ED-003-F	And also I mean obviously, yeah, conversation awareness and chefs have big voices. So it's about possibly key people within the industry. Talking now but talking about it a little bit more. UM, it's about education, but changing the way out of, you know, curricula within schools coming up.
IS-002-F	And that's the kind of thing people have been saying to me for many years for many different industries, not just hospitality and food service. But I think the companies are now acting on that much more consistently in terms of making mandatory saying sustainability training more important, more overtly communicating companies values and missions. And their net-zero strategy and how that might actually apply to peoples roles a bit more clearly.
IS-003-M	Now the guests and customers are a lot more aware and look for sustainability and they look at the environmental impact. If I look at a number of the clients I work with. I've got one client in particular who are an events company, who if I if I was with their CEO 5-6 years ago. He would have totally different view to now where as now their transport is becoming electric. Everything has completely changed because their clients expect then to be taking a view on the industry in terms of wastage, in terms of usage, in terms of sustainability, in terms of energy. This has completely changed and is one of the key things that we're facing.
IS-004-M	So I think if there is more engagement from people coming to the restaurant to ask these kind of questions, if they feel more free to ask these kinds of questions and then the front of house can relay back to the chef like we had this many people asked this question tonight or you know things like this that will help inspire the chefs to realize that people are actually talking about it.
IS-004-M	Umm, I think it's kind of this is my personal opinion, but I think it goes hand in hand with, umm, people being more connected with the restaurants and chefs through social media. Part of the branding of a restaurant is the chef, and the chef often has more followers than the restaurant itself. So what they say and do has more value?
IS-005-F	So they're including more KPI's around things like food waste, but all to see other carbon or environmental impacts, because of course it's not just all about carbon, but uh. So yeah, I think I I think it's patchy.

	I think in some places it's really good. People get it and then other places they don't, they don't in it.
SM-001-F	So I guess it probably you know like when I was at University, the Restaurant. I was working for was actually a member of the Sustainable Restaurant Association. So even when I was just like a waitress at the weekends, I was still aware of what it meant to be a sustainable restaurant. And the restaurant I was working at, although it was a burger restaurant, was really focused on that kind of local seasonal Sussex piece.

Chefs Skills

Participant ID	Inductive theme: <i>Participants grapple with skills that are applied to knowledge</i>
CH-005-M	So yeah, I think that that a lot of education in that part of it has to be really a topic of discussion within the kitchen. Whenever you do your meeting or. And you know you're doing any training topics cause the a lot of training now is done online as well. So that it can be one of those things that you can be added into a curriculum.
CH-006-M	But I still think even though people are a lot more conscious of that, do you think this is if the lack of the knowledge rather than the lack of the skills that prevent people from being able to do more?
CH-006-M	I mean it's skills is one I think it's knowledge that's missing. I don't think I don't think it's so much skills. I think what's missing is knowledge. I mean the skills in kitchens are mostly around technique and the way to do things. I I think if you have the knowledge about the thing then the same skills apply.
CH-006-M	I don't think it's skills, it's missing. I think it all comes down to organization and it comes down to knowledge and people wanting to have the knowledge.
CH-006-M	Once they realized the work that goes into it, like if they spend the three month growing the potatoes, they're much less likely less likely to set #1 they're much more likely to store the potatoes correctly because that's number one that's one bit of knowledge that's missing is that understanding how to store food things default setting for a lot of people, even chefs in the world, like there's a lot of nothing knowledge, a lot of it goes into places
CH-006-M	I think the thing is the information all of the information is readily available. You know, if you if you wanna look up how long it takes to grow to a cocoa bean. If you wanna look up the process of how to get chocolate or you can just google it with it. Something is missing because if people would have knowledge is there, but people

	don't seem to want to look for the information. Uh, I think also that depending on the type of environment working in we've all been very used to, we don't understand like a lot, we don't understand seasonality, we we we're so used to being able to get whatever you want whenever we need it. And again, that's a once you have that mindset it imparts changes no are there are there are restaurants that I've seen in the last couple of years.
CH-007-M	I think organization and just general organization skills, especially in a commercial kitchen. Umm, uh, it's the I saw countless amounts of ovens hobs left on as well as and stuff like recycling. For example, even and just you thrown in the one bin no be OK and or and then also that could be a fault of the layout of the kitchen.
CH-008-M	Are there any skills you think are particularly relevant when it comes to reducing food waste in restaurants, are potentially reducing greenhouse gas emissions of the food produced? 0:10:35.880 --> 0:10:55.530 CH-008-M I think this is a subject which is to I mean very easy to talk about, but very difficult in part when you work, when you do the work, because I there are the definitely skills that person needs to.
ED-002-M	So lots of greenhouses as well the, you know, the heat off of the greenhouses, the energy they're used as well. So and I know that's not greenhouse at admissions as such, but I don't think there's a lot of knowledge, huge amount of knowledge on that really. And it's not something, I mean, we talk about sustainability, we talk about waste and environment, but I don't think we talk about enough. So it's just, yeah, it's bad. I don't think there's enough knowledge on that for menus.
ED-005-M	somebody's understanding of how to reduce food waste or effects on the environment would certainly be around their own understanding of the issues that face environmental contribution that this sector that this industry makes on those issues and also their ability to reduce those i.e. a more conservative use of fossil fuels, more effective use of equipment and a more efficient application of skills. Reduce the impact of the end product

Participant ID	Inductive theme: <i>Skills and knowledge foundations vary (U.K. and international colleges, self-trained, no standard CPD for chefs, grown up with a link to farming or in cities)</i>
CH-005-M	You know, they, they, they and they and they the interest in their craft for the future is what they need to have I think to succeed nowadays because it you you've got a lot of different tiers in skills and abilities and attitudes now it's very different now.
CH-005-M	Does the pea protein on the other hand? Is that a different kind of damage, you know, so I and I think that's their skills that chefs

	probably not even thought about a lot of the younger the younger generation at the moment it's coming. You know, they're they are the future. They're the ones that are actually driving us really to think about this as well. So, uh, I think that those skills that are chef needs nowadays is to more be aware to understand. Umm, what the impacts are and I think the food waste as well you need to be able to do something with that
CH-005-M	So yeah, I think that that a lot of education in that part of it has to be really a topic of discussion within the kitchen. Whenever you do your meeting or. And you know you're doing any training topics cause the a lot of training now is done online as well. So that it can be one of those things that you can be added into a curriculum.
CH-005-M	Strategies of human resources. I mean. The maybe they could play a part in the education of the chefs when they come on board. I mean a lot, a lot. I mean, when you look outside of the kitchen, uh, and you, I don't know. and you go into an office. human resources would do.
CH-006-M	At the time I didn't have any formal training in the kitchen and yeah, I went along did it was my second trial I did and I got offered the job Uh, in a fine dining level, so I started off in pastry there working because that was where the chef said it was the easiest place for a new chefs to start, because it's and the area that you really prep, though, it's a lot less of the service, like cooking to serve immediately
CH-006-M	So they're very, very much now that they're making sure that. If you've got an employee, you are doing something for that in order to get to develop, even if it's a, you know, some people don't even wanna carry on in their own field and they go and train in something else. You know, you know, they've seen many waiters. Now they're in technical services, you know, so it's a. Yeah. It's giving everybody opportunities and being open. That's what they do to help, for the chefs. They I. I think you know a learning or encouraging courses. Anything that I I, chef needs they they're very, very active in, in doing that. And I think you know they it's a better place than it was that way, yeah.

CH-007-M	I feeling most of it is just through osmosis, just through most chefs I've worked rarely been to like any culinary schools and that a lot of the time it's just experience in kitchens themselves
ED-004-M	UM, unfortunately I wasn't the most academic student at school, Uh could was quite bright on certain things, but just couldn't find my niche in that. I love to cook and just ended up finding my way into catering college and then going off and working in France to start off my career. I had this grandiose idea of travelling around the world and working wherever. I did a year in France, just over a year in France, I came back to London and I never left
ED-005-M	I think uh, YouTube and Instagram, particularly YouTube, has a lot to play in young chefs in current chefs development are now a lot of our students are not a lot of young chefs these days will use YouTube
ED-005-M	I'd umbrella it around the training so whether that was college apprenticeship or working for somebody, I mean not everybody goes to college. Not everybody does an apprenticeship. some are self-taught some you know self-training so I think that would kind of umbrella under the term training initially.
ED-005-M	You know, I used YouTube to learn how to change the brakes on my car. You know, you sit there with a laptop and you learn a new skill of, you know, learn how to put an edging on a kitchen unit the other week by watching YouTube video. Say I think YouTube has a lot of skills to vote, so I'd say social media generally. Well, maybe online resources would be a more encompassing time to develop skill, but certainly broadly for chefs, it is learning from others and repetitive practice and the main ways in which we develop new skills.
IS-002-F	And that's the kind of thing people have been saying to me for many years for many different industries, not just hospitality and food service. But I think the companies are now acting on that much more consistently in terms of making mandatory saying sustainability training more important, more overtly communicating companies values and missions. And their net-zero strategy and how that might actually apply to peoples roles a bit more clearly.
IS-003-M	A good percentage of the chefs of British that and then changed if you went into a kitchen five years ago in a London restaurant majority of the chefs from overseas. Now we have a major skill shortage in the UK, so we have to start developing our own talent and that has to start at school level from the bottom and really teaching our children about food and what a brilliant industry this is to go into
IS-003-M	The old qualifications and systems that the UK did have were actually very, very good. If we had a qualification going back to the 80s, nineties called City and Guilds and it has changed dramatically, so a lot of young chefs that are coming through expect when they finish their college course to go straight in at chef de partie level and they're not. They're

	juniors. You learn over time. You're always learning this industry. So skilling up our chefs is vital in all levels of the industry, but particularly.
IS-003-M	In the restaurant sector, where the UK has relied on trained chefs coming in from overseas, we have to start developing our own chefs, so the skills chefs need, firstly, the ability to work in a kitchen, the ability to work as part of the team
IS-005-F	She is offering sustainability training for restaurants and you you might be able to find it on on the website by just simply looking

Participant ID	Inductive theme: <i>Basic, fundamental skills (cooking methods, knife and ingredient skills, necessary at the start, linked to food waste, possibly to GHGE)</i>
CH-005-M	basic training like the basic knowledge that you know when I send somebody into a fridge for a parsnip he doesn't come out with a celery, you understand that I've been to catering college. They understand the fundamentals of the kitchen, the fact that we need to have a certain amount of hygiene.
ED-001-M	Well, I think this the policy should come down to the exec chef or the companies. And if we are putting on a a dish and we want a perfect square of lamb, a lamb rump. OK, we can cut that. What happens to the trimmings? Have a plan to utilize the trimmings You're gonna get. Not necessarily. I was a bit of trimmings there. Sticking the freezer will use it later. No, let's have a plan. I thought and I used a rack of lamb three ways and we had a two rack of lamb or two bone rack of lamb which which was roasted off with a crust. A little piece of Canon which we sous vide so you get less waste with the reduction of the cooking. So method to cooking and then all the trimmings. I then put into a fagot and it's using things like the offer as well which are not trendy dishes
ED-002-M	I think, yeah, again, training is gonna have to be part of it. So having a training program that everyone can access. That will give them people in larger skills, so even if you've got you, even if management and then having different levels of that of course. But if we can just even get that into entry points are into colleges for now, and that would be a good start, wouldn't it? Because when they go into the workplace, they're gonna see all the practicing, the the bad practices that are happening. And then, yeah, campaigned to back that up and yeah.
ED-003-F	But I think with the courses that I for nutrition, gastronomy, food trends, there is a a massive part of that is sustainability. So within that is such a huge topic. So we have sustainability, we have sustainability diet because we can't sustain what we're eating now and everyone moving to soy, we're chopping down rainforests with soy.
ED-003-F	So if I can look at it from the college point of view, we're having that conversation right from the beginning of our courses. So talking about the welfare, the sustainability, the waste of a product all linking into environment, so you know and then going into that a little bit more, we do a lot of work with guardians of GRUB which is WRAP part of

	WVCA campaign and there's one, you know, a couple of us that have very much into that.
ED-005-M	So in terms of skills development, uh, this is something I've probably said gazillion times to a million young chefs. The development and I were taught this when I was just starting out as well, and the development of chefs' skills is very much the like any other ancient or established craft trade and I do see it as a craft trade, you know, like a Carpenter, like a mechanic, like any other trade skill that you have. And you always start with the fundamental skills.
ED-005-M	attributes and qualities as opposed to technical skills that chef needs to master
IS-001-F	Look after the ingredient from it comes in the back door until it served under the player, you know, so not leaving your delivery. OK, it's not high risk. So even if you just look at vegetables or fruit, it's not high risk. So it will not be a priority to get that into the fridge as soon as it arrives. But you leave that for three or four hours in a warm, humid kitchen environment before it goes into the fridge. It's sweated and then all of a sudden it's put into this. Much more extreme cold that has an impact on the fruit that has an impact on the vegetable and it will cause it to spoil much quicker.
IS-001-F	And it's again the same with, you know, fermenting and things like that. Great, really good skills to teach, but actually we need to teach the basics as well. You know, the simple things like use a peeler instead of a knife and, you know, the yield that you'll get.
SM-001-F	So really focusing on that, yes, we need to sell more sustainable food, but we also need to make sure that our chefs understand how to make tasty, sustainable food.

Participant ID	Inductive theme: <i>Advanced skills (analytical, communication, people management, and menu engineering, necessary later in careers, linked to food waste and GHGE)</i>
CH-005-M	You know, they, they, they and they and they the interest in their craft for the future is what they need to have I think to succeed nowadays because it you you've got a lot of different tiers in skills and abilities and attitudes now it's very different now.
CH-005-M	So yeah, I think that that a lot of education in that part of it has to be really a topic of discussion within the kitchen. Whenever you do your meeting or. And you know you're doing any training topics cause the a lot of training now is done online as well. So that it can be one of those things that you can be added into a curriculum.
CH-005-M	I think there are a lot of attributes and qualities as opposed to technical skills that chef needs to master.
CH-006-M	I don't think it's skills, it's missing. I think it all comes down to organization and it comes down to knowledge and people wanting to have the knowledge.

CH-007-M	then from my own personal experience it's, uh, prep the start of the shift, which also links into kitchen hygiene and making sure that all the there's enough prep all prep is in dates, that is of use and not make too much prep
CH-007-M	especially when tickets start coming through and or you know when you when you cook the meal and you've got to be able to. Be able to keep track of, yeah, multiple different tasks
CH-007-M	And it's been able to understand the whole picture of what you need to do, I think is quite important in terms of play stuff like prep and, you know, no being able to actually, you know, you look at what you've got already, you don't just dive straight into it, You don't make too much and you see OK, we've got too much of this.
CH-007-M	I Think organization and just general organization skills, especially in a commercial kitchen. Umm, uh, it's the I saw countless amounts of ovens hobs left on as well as and stuff like recycling. For example, even and just you thrown in the one bin no be OK and or and then also that could be a fault of the layout of the kitchen.
CH-007-M	Let's say being able to communicate, being able to wear with other people, and on the other end of that, being able to received communication and being able to take that in and do what was asked of you
ED-001-M	Well, I think this the policy should come down to the exec chef or the companies. And if we are putting on a dish and we want a perfect square of lamb, a lamb rump. OK, we can cut that. What happens to the trimmings? Have a plan to utilize the trimmings You're gonna get. Not necessarily. I was a bit of trimmings there. Sticking the freezer will use it later. No, let's have a plan. I thought and I used a rack of lamb three ways and we had a two rack of lamb or two bone rack of lamb which which was roasted off with a crust. A little piece of Canon which we sous vide so you get less waste with the reduction of the cooking. So method to cooking and then all the trimmings. I then put into a fagot and it's using things like the offer as well which are not trendy dishes
ED-002-M	So and there is greener skills across hospitality is actually something that we do at doing it. We're just doing at the college, but we're not. We haven't written it. We've taken it for some somewhere else to deliver, and because we think that's something that needs to be, you need to learn more about and be a lot of appetite for
ED-005-M	a professional chef also has to do a lot of HR, finance, marketing, a lot of business skills
ED-005-M	Kitchens are inherently boiling pot of different cultures and backgrounds and personalities, and balancing that and getting the most out of your team is very important. So I think the management across different cultures is very important. I think there is a shift of management styles in terms of HR in terms of human resource management, in terms of HRM, how chefs manage.
IS-003-M	It's a very rare skill, and some are better than others, and there are some people incredible chefs that have the ability to be able to do it for restaurants and those that can actually do it for different sides of the industry. As in scaling up for events, working with supermarkets, working in airline catering, where you have to look at the ingredients and

	everything you do and work with and the taste and the feel of the food. So yeah, chefs are creators.
IS-003-M	it is very hard to cut down on waste if you're if you're doing an event for the chefs are doing an event for maybe 1000 people, they have to cater for. If they don't know their guests requirements, etcetera and again that is down to planning on the event and that comes from the event plan and managers and you really need to look at planning for catering for a number over. So whereas 10-15 years ago you would have a 10% vegetarian, sometimes with an event, now you can have up to 30% so that then leaves extra wastage at the end. It's being able to look at your menu and what you're planning to be able to use the ingredients in other dishes. And really look at your ordering, really look at your numbers it's a very difficult balance in it.
IS-006-M	I think the leading skill set required for chefs working in kitchens is: people because ultimately they come on board and take the money journey and I would say that interpersonal skills and leadership skills are probably the two more most important.

Participant ID	Inductive theme: <i>Skills decline (ingredient knowledge, basic skills, linked to a recruitment crisis, possibly linked to standardisation and specialisation of businesses)</i>
CH-005-M	You know the college is lecturers because they're teaching them them, bringing on the new, the new generation and they work with chefs a lot anyway, you know. And I think obviously they are the base level and the feeder, I think they, you know all this chef academies, all the chefs that have opened up cooking schools and things like this as well or like the Prue Leith Academy or, you know, Cordon Bleus of the worlds, you know, talk to them and say, what are they selling? What image are they selling? What? What do they think they the the their graduates are gonna go to. 0:52:39.600 --> 0:52:39.760 Doctoral Researcher Yeah. 0:52:20.650 --> 0:52:47.510 CH-005-M You know those those people I think would be a good recruiters are not too sure about, but that definitely the educators because they are as well that you're the source of what's coming through and they would be the first people to talk to get their into the brain of you know feed it into the brain of the new the new the new chef coming through.
CH-006-M	I think there's a big loss of connection as to where the food actually comes from. I think a lot of chefs, the I think there is a probably only one or two restaurants that I know

	where all of the chefs actually go to see where the food comes from that's where the problem lies.
ED-002-M	So and there is greener skills across hospitality is actually something that we do at doing it. We're just doing at the college, but we're not. We haven't written it. We've taken it for some somewhere else to deliver, and because we think that's something that needs to be, you need to learn more about and be a lot of appetite for
ED-003-F	The skills have definitely declined in a lot of other, you know opinions. It's very, very difficult for people outside London to gain skill, chefs and why I think it's definitely it's gotta be down to the funding of colleges and the hours being cut and cut and cut. So we haven't got enough contact time and we've all these students are doing are coming in and filling out paper, you know, paper exercises, whereas it should be the concentration on practical skills. And so the skill set, in my opinion, has declined a lot, but also I think this is to due to technology and possibly UM, the use of a lot more technology and fast food type restaurants coming in and not needing so many skilled staff. If you've only got like the huge the wonderful ovens that we're given are the combination ovens that you know can be controlled from an app and it will do it all for you. We've just got a program it in a recipe, so why do you need a chef to do that?
ED-004-M	So there are more spaces to be filled, but the lack of education and a lot of the chefs that are running the places they're not educated enough to be able to train the next lot of people. So we still have that area that we need to fill
ED-004-M	And so with that, there is a massive interest in food. Uh, admittedly from my side there are as far too many cookery programs on television now, and you can watch the cookery program and you don't go into the kitchen, you don't cook, you just order it.
IS-003-M	The college system and the training system in the UK needs to be completely overhauled. We now since Brexit and the changes the UK has decided to make. We need to be skilling our chefs from a very young age, educating them in food for a start when they're at school. And persuading them to go into the industry. Then we look at the skill levels from when they're starting to train to be a chef.
IS-003-M	The old qualifications and systems that the UK did have were actually very, very good. If we had a qualification going back to the 80s, nineties called City and Guilds and it has changed dramatically, so a lot of young chefs that are coming through expect when they finish their college course to go straight in at chef de partie level and they're not. They're juniors. You learn over time. You're always learning this industry. So skilling up our chefs is vital in all levels of the industry, but particularly.
IS-003-M	If we look at the restaurant market and if we go back to when I was at College in the 80s. It's something that UK needs to address. The training in colleges when I was at college and you went from there straight into the industry, I felt I learned more in my first few months of industry than I learned at college.

HMR

Participant ID	Inductive theme: <i>HRM extent is business-dependent (can be non-existent)</i>
CH-008-M	Human resource management in restaurant uh. I think it's. I mean, I my only experience with that is what I'm working at the moment is done pretty well. Yeah, it has many elements involved. We have a lot of uh people involved in human resource management. We employ a lot of chefs together, 20 just in our kitchen the moment that we have. We asked for it. We bought it. To talk sometime. I mean, the whole world adjusted after Covid. I'm not exactly sure how like to interpret this question so, but that's I think this is what you want to do. Yeah, the show.
CH-001-M	I mean, in my experience, the only thing that. Effects. From a human resource perspective, is like. There's not even, I suppose, if they miss something, or they seem to have worked six weeks and then they don't get paid at the end of it or something like that. It really does mess with peoples the way they feel because they feel, you know, they don't feel any worse. OK. I've just been working. I didn't get paid. How did that happen? They care. Did they?
IS-002-F	So they're including more KPI's around things like food waste, but all to see other carbon or environmental impacts, because of course it's not just all about carbon, but uh. So yeah, I think I I think it's patchy. I think in some places it's really good. People get it and then other places they don't, they don't in it.
CH-002-F	But I think the resources, you know, the financial and the time resources available to do that am often don't exist in smaller places yet. And in larger places there can be really good training schemes and support schemes and so on. And but I do think there's a constant struggle to sort of keep people happy and whilst maintaining what is needed for the restaurant to actually be successful profitable. But I think the resources, you know, the financial and the time resources available to do that am often don't exist in smaller places yet.
CH-003-M	Let's say in the last 15 years or so before, there was not much of the interaction between human resources and kitchen, but now there is more corporate responsibility. Companies have learned more to interact with the kitchen staff as well and kitchen staff as well feel that yes, they have Uh, voice to hear. I remember I mean, before 15 years ago, you would be beaten up in a kitchen. You would be, you know, smacked in the kitchen with the chopping board at the knife. And you've got nowhere else apart to go to your chef, and Chef will say yes. But what the sous chef did was fine.

	But nowadays people understand yes, the HR is for everyone, but this is 1 aspect of, you know, grieving voicing your grievance. But then other aspects as well, because HR has become much more involved in in the well being. So there is a lot of mental wellbeing that's being looked after. People are being encouraged, encouraged to voice anything that concerns them mentally as well as physically. What they can do, what they cannot do, and there is a lot more support. So there is a lot more listening power that has increased in the last 10 years. Companies are ready to listen and to act on something that they can support. The employee, which doesn't matter which part of the restaurant they are from. But yes, kitchen especially people, are really looking after the staff and also the scarcity of staff has made HR do lot of things for them. Obviously joining bonuses, ummm looking after activities, be it a working with the charity or doing something else, so they are looking after the staff a lot.
CH-003-M	The whole journey, then obviously as they go through the recruitment process, the meet the HR manager, HR director, then the chef, then there is trial shift. So this is where they start. But after that, all those things that they have been sold and then there is an employee handbook everything that the employer reads, they can understand there is a support from for them from the human resource much more than used to be before, before they were just hired a contract is signed and they would start in the kitchen and that would be the end of meeting with the HR. But these days, we like companies that do a lot more activities, they do football matches. They do. Let's say any activity which is purposeful. So let's say you cook, go and cook for an older community. Homes or HR gets involved in it. They direct the employees with the health and safety part of it, the risk assessment, so they are more involved with these kind of things and obviously if someone has any concerns they can go and talk about it, the mental wellbeing also is looked after that, yes, are the employees suffering, is there something more that can be done. So there is regular surveys twice a year or twice a year. A lot of companies have started doing some surveys to understand how their each company has a different philosophy of looking after the employees or something that they believe that they're doing something. The which is good for the business, but at the same time HR has stepped in now and said yes, your business is important, but then at the same time the wellbeing of the employees is important as well. And that has started, I would say, for the employees to stay longer with the companies

	because at the moment everyone is scared of losing employees. So HR is doing a lot more things than previously to look after the employee. Not only benefit not only mental health, but checking on them just regularly to come and say hello so it has changed a lot.
CH-004-M	Human resource management as a human resource management, I think. It comes out in terms of are you treat the food? Maybe I don't know. How's is the food treated. I don't know exactly.
CH-006-M	Nothing. I don't think I've ever spoken to it to HR department. not in any restaurant that I've worked in. If they are, they usually probably some kind of centrally located one. Uh, in this is based on the restaurant that I've worked in.
CH-007-M	Yeah so, and I'd say again, a lot of the time and it's the reason why uhhm it's quite chaotic is and it's a sort of chicken in the egg sort of thing I think that it's generally a job. What is being this too chaotic to be like a lot of whenever I was in hospitality, whether it was in the front of house and or a lot in the back of house as well, it's uhhm. It just seemed as you know, you get what you're given do is maybe a little and stuff like rota, for example, and was completely normal to receive them Sunday evening and with no way of planning what you've been doing for the week as well. On top of that, holidays have to be boooked weeks and weeks in advance, and if someone else's booked the same one, so you can't have it. And so and then on top of that, you, there's a lot of, I think generally for a fact, there's a lot of shifts. Out of them What We're most likely not legal to do, and I know when I was. Uhhm yeah, there there's a lot of shifts where and they were just far too long I wouldn't actually get a break I was meant to have and if it did take the break, it would be deemed like, you know. uhhm I'm like being lazy instead of just working through it. Which, yeah, like in hindsight, is most likely illegal.
CH-007-M	think kitchens expands this stuff like and contracts and around generally and I was just plummeting with you know so there's no, there's no if it's not profitable for the kitchen, there's no actual and there's no certainty in shifts. There's no stability. And then on top of that, yeah, that's. But now I feel like that's just general, but means somebody is that there's no stability there is not certainty in lot of stuff and a there's a lot of flexibility, which can be a good aspect, but I'd say mainly it's just. Yeah, there is a lot of beenlost and you sort of expected to be beholden to the kitchen.
CH-009-X	That it is pretty non-existent. Is pretty non-existent. I've only seen that in like 2 places I've worked in, that they even had access to human resources. A lot of places are just tiny and the people doing the human resources are just the other people who've, like, set up the restaurant and they set up a restaurant because they have to cook. Not, you know,

	potentially all because they have a restaurant, but you don't see a lot of human resources staff in smaller restaurants.
CH-009-X	Quite frankly, I think there's so little of it. There's not we don't even have like an I think there's like 1 chefs union and it's so small that most people don't even know exists like, so you don't know where to go for that kind of stuff so I would say it's almost non-existent, and especially in smaller places really just there's nothing if you find out that you're then like, say you've got, like, I went through a period where I have had a change of medication and as a result I had quite bad mental health crash and my workplace, though they had one person who did HR kind of, they weren't really trained in it they were actually an operations manager and they were just the person in charge and they just had no idea what they were doing and so it was an utter disaster.
ED-001-M	Umm, how they abuse staff for their hours? I think umm, I had a wonderful apprenticeship where I wasn't allowed to work past the certain time to start off with and a few nights I just stayed off my own recall because I was wanting to see the evening service.

Participant ID	Inductive theme: <i>Recruitment crisis (Learning and development, wage increases and benefits used to counter the lack of chefs)</i>
CH-003-M	It starts from the recruiting phase. It's when somebody recruits them, they talk about the company values that this is why we would like you to join this company and this is starts from there. So yes, it starts from the recruiting phase and the human resource at that point this it's like selling something because of the scarcity of staff, the human resources have started to sell the company. They talk about the company. Let's say you work for this hotel chain it has got this many hotels. The bonuses are this. This is your joining bonus as part of this. You get this benefits, you get staff meals, you get this. So a lot more awareness is there in the HR about I am selling the company to the, to the staff at the beginning stage. So this is where it starts.
CH-005-M	So they're very, very much now that they're making sure that. If you've got an employee, you are doing something for that in order to get to develop, even if it's a, you know, some people don't even wanna carry on in their own field and they go and train in something else. You know, you know, they've seen many waiters. Now they're in technical services, you know, so it's a. Yeah. It's giving everybody opportunities and being open.

	That's what they do to help, for the chefs. They I. I think you know a learning or encouraging courses. Anything that I I, chef needs they they're very, very active in, in doing that. And I think you know they it's a better place than it was that way, yeah
CH-008-M	Yeah, I think I said that just now is like it's about who you're going to. Restaurants first of all when you're looking for new talent and then obviously if you're not looking for anyone is you can shift around things around by ohh developing individuals on their skills. So by giving them instructions or like making creating a course for them or creating a I don't know, like a field trip somewhere because being honest with you, a lot of chefs come from backgrounds where they don't see this.
ED-002-M	They are the reason the building is there and really just really looking after the staff, isn't it? You know, you know, paying him 40 or anything, it doesn't have to be that. It's more just about respecting them, getting them involved, getting excited about it, not having to do the same thing all the time, keeping them moving around, doing different things. So don't get bored. Uh, yeah. So it's the same with the longer when you get the bigger groups, then a lot of them have similar stories of keeping their staff for long times, but always seem to come down to training and upskilling and keeping and then promoting from within and giving them a real career path and that kind of thing. So, you know, I think staff are quite happy to have training. Obviously it costs money to do these things. You're taking them out of work for a bit to do it, but I think it does definitely.
ED-003-F	So if you've got the HR, then looking at whether that's a chef has been trained prior to the job they're looking on top of the legal requirements that the restaurant has got to do, and also the welfare of their staff as well. And ensuring that the restaurant is complying, that's what I would say that HR would link to.
ED-005-M	UM about recruitment and retention. So recruitment is a huge HR. Umm, it's a huge element of HR that chefs have to consider but then also retention. So how? What sort of working practices and working like do we offer our are staff? Umm, so yes, so there's the orchestration of your brigade.

Participant ID	Inductive theme: <i>Improved conditions (better pay, fewer contracted hours, better benefits)</i>
CH-002-F	So for example, the place I was working recently and they made a commitment well in the contracts where possible staff would have two days off back to back. And because you know, people and people would always have two days off, that was a commitment where possible, back to back. And because working six hours 7 hours is not conducive to anyone being that good and you burn out
CH-003-M	Let's say in the last 15 years or so before, there was not much of the interaction between human resources and kitchen, but now there is more corporate responsibility.

	Companies have learned more to interact with the kitchen staff as well and kitchen staff as well feel that yes, they have Uh, voice to hear. I remember I mean, before 15 years ago, you would be beaten up in a kitchen. You would be, you know, smacked in the kitchen with the chopping board at the knife. And you've got nowhere else apart to go to your chef, and Chef will say yes. But what the sous chef did was fine. But nowadays people understand yes, the HR is for everyone, but this is 1 aspect of, you know, grieving voicing your grievance. But then other aspects as well, because HR has become much more involved in in the wellbeing. So there is a lot of mental wellbeing that's being looked after. People are being encouraged, encouraged to voice anything that concerns them mentally as well as physically. What they can do, what they cannot do, and there is a lot more support. So there is a lot more listening power that has increased in the last 10 years. Companies are ready to listen and to act on something that they can support. The employee, which doesn't matter which part of the restaurant they are from. But yes, kitchen especially people, are really looking after the staff and also the scarcity of staff has made HR do lot of things for them. Obviously joining bonuses, ummm looking after activities, be it a working with the charity or doing something else, so they are looking after the staff a lot.
ED-005-M	And always remember that and there are obviously changing and ever-changing HR laws surrounding working practices, whether that being kitchens or any anywhere life minimum wages, minimum, maximum working hours. Umm, work is right. So on and so forth that has affected the whole kitchen role of the chef, the way in which kitchens operate, we can't do 16 hours, seven days a week anymore. It's apparently it's illegal. I don't know. So I think that has changed. And recruitment has changed, even down to things like theses and my immigration laws.
ED-005-M	we go from a very archaic and kind of epitomized by a British Celebrity Chef in boiling point some 20 years ago to where we find ourselves now with the likes of more recently female Michelin star chefs who would be more and I'm talking at the very sort of top end high end but we need to move away from the very brush, archaic sort of brutality method of management to a much kinder, more nurturing. more wait ... empathetic, empathetic method of, you know, to be more and empathetic and understanding of people's needs, people's needs very different
ED-005-M	Kitchens are inherently boiling pot of different cultures and backgrounds and personalities, and balancing that and getting the most out of your team is very important. So I think the management across different cultures is very important. I think there is a shift of management styles in terms of HR in terms of human resource management, in terms of HRM, how chefs manage.

Participant ID	Inductive theme: <i>Ambition in tension with reality due to financial pressure, lack of process and limited contact time</i>
CH-002-F	And yeah, so they have that commitment and they also. Have put everyone on contracts on hour contracts, hour salaries contracts. So nobody's on the 0 hours contract and because that is, you know, not a very sustainable way for staff. And I know you know most places. Well, I've been lucky that at most of the places I've worked haven't actually wanted to treat staff badly and take away their hours. But I have worked places where it's been done when it suddenly an awareness of oh, we need to cut costs. What can we do? But we'll give them only 10 hours when they used to be on, say, 40 hours and then I think the other norm that I've seen places trying to break is about like really long shifts and doubles and maybe having a capping, a limited like a 12 hour shift Max, no sort of 16 hour shifts and so on. And then pay. Definitely, I'd say has gone up since the pandemic, but I think that that was forced on a lot of businesses. I don't know if they necessarily chose to do that and but that I've definitely the people I know that are running kitchens that I've been in recently that is sort of where they're at.
CH-007-M	Yeah so, and I'd say again, a lot of the time and it's the reason why uhhm it's quite chaotic is and it's a sort of chicken in the egg sort of thing I think that it's generally a job. What is being this too chaotic to be like a lot of whenever I was in hospitality, whether it was in the front of house and or a lot in the back of house as well, it's uhhm. It just seemed as you know, you get what you're given do is maybe a little and stuff like rota, for example, and was completely normal to receive them Sunday evening and with no way of planning what you've been doing for the week as well. On top of that, holidays have to be booked weeks and weeks in advance, and if someone else's booked the same one, so you can't have it. And so and then on top of that, you, there's a lot of, I think generally for a fact, there's a lot of shifts. Out of them What We're most likely not legal to do, and I know when I was. Uhhm yeah, there there's a lot of shifts where and they were just far too long I wouldn't actually get a break I was meant to have and if it did take the break, it would be deemed like, you know. uhhm I'm like being lazy instead of just working through it. Which, yeah, like in hindsight, is most likely illegal.
CH-009-X	So even in that environment where they have someone responsible for it, they still then just sort advice from an external PHP agency that they paid on a pay-as-you-go kind of basis and that is the best human resources I've found so far.

ED-003-F	And trying to think well, I think it should be positive, it's a communication levels and is upskilling staff and it's ensuring staff have the right to you know for good, good working hours with good conditions So it's regulating what the hotel, restaurant etcetera does for their staff,
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Participant ID	Inductive theme: <i>Participants linked HRM with Corporate Social Responsibility (CSR) as a strategic aim, predominantly through social responsibility for staff</i>
CH-001-M	I mean, in my experience, the only thing that. Effects. From a human resource perspective, is like. There's not even, I suppose, if they miss something, or they seem to have worked six weeks and then they don't get paid at the end of it or something like that. It really does mess with peoples the way they feel because they feel, you know, they don't feel any worse. OK. I've just been working. I didn't get paid. How did that happen? They care. Did they?
CH-002-F	But I think the resources, you know, the financial and the time resources available to do that am often don't exist in smaller places yet. And in larger places there can be really good training schemes and support schemes and so on. And but I do think there's a constant struggle to sort of keep people happy and whilst maintaining what is needed for the restaurant to actually be successful profitable.
CH-003-M	Let's say in the last 15 years or so before, there was not much of the interaction between human resources and kitchen, but now there is more corporate responsibility. Companies have learned more to interact with the kitchen staff as well and kitchen staff as well feel that yes, they have Uh, voice to hear. I remember I mean, before 15 years ago, you would be beaten up in a kitchen. You would be, you know, smacked in the kitchen with the chopping board at the knife. And you've got nowhere else apart to go to your chef, and Chef will say yes. But what the sous chef did was fine. But nowadays people understand yes, the HR is for everyone, but this is 1 aspect of, you know, grieving voicing your grievance. But then other aspects as well, because HR has become much more involved in in the wellbeing. So there is a lot of mental wellbeing that's being looked after. People are being encouraged, encouraged to voice anything that concerns them mentally as well as physically. What they can do, what they cannot do, and there is a lot more support. So there is a lot more listening power that has increased in the last 10 years. Companies are ready to listen and to act on something that they can support.

	The employee, which doesn't matter which part of the restaurant they are from. But yes, kitchen especially people, are really looking after the staff and also the scarcity of staff has made HR do lot of things for them. Obviously joining bonuses, ummm looking after activities, be it a working with the charity or doing something else, so they are looking after the staff a lot.
CH-005-M	Then you don't see them around on the floor match. They're very much they're having to deal with the logging and the making sure that the the training of scheduled or they're dealing with checking up on the online learning that those, those that, that those things are happening and investing in those they, yeah, they there's a a big team of them now and for the hotel that is when I talk about the fine dining restaurant, OK, there's a there's one there but they're dealing with all the law aspects of the job as well of mean for a staff there. You know there making sure that when you receive someone, their journey from Day 1 to the third month that you've kind of tracked progress, you know, so that people don't just fall through the net for the sake of it.
CH-005-M	So it's very much the they are looking for the well being really of the of the staff and that's all I can speak about really for the human resources part for our environment here you know they don't get day to day running and come and check what you're doing you know they leave you to do the job you know.
CH-006-M	know that there are some. There are. There are companies I've worked with that are looking into, things like mental health training. Ah, but it's not been in in companies that I've worked for, like I've never spoken to an HR person not in the restaurant like that.
CH-007-M	So you pay organized to defining how work is happening, as in a that sort of thing, yeah.
CH-007-M	think kitchens expands this stuff like and contracts and around generally and I was just plummeting with you know so there's no, there's no if it's not profitable for the kitchen, there's no actual and there's no certainty in shifts. There's no stability. And then on top of that, yeah, that's. But now I feel like that's just general, but means somebody is that there's no stability there is not certainty in lot of stuff and a there's a lot of flexibility, which can be a good aspect, but I'd say mainly it's just. Yeah, there is a lot of been lost and you sort of expected to be beholden to the kitchen.
CH-008-M	Yeah, basically no. The work of human resource management is one of the key factors in a restaurant is how to get someone involved with the with the workplace first of all how to attract new talent. How to attract someone that may have an impact on how the business runs and how to get to a point from like HB so human resource management is I think one of the core fundamentals of like you know building a successful business, successful restaurant. And so maybe how this will impact on sustainability if like you

	maybe need on your talent and your manager and your chef. So get someone that has experience doing that and dealing with that. So he can bring some new like, you're not just some new not just your old talent in your workplace or bring some new ideas so you know your it's always vibrant. So that's human resource management and it comes through this subject.
CH-008-M	Yeah, I think I said that just now is like it's about who you're going to. Restaurants first of all when you're looking for new talent and then obviously if you're not looking for anyone is you can shift around things around by ohh developing individuals on their skills. So by giving them instructions or like making creating a course for them or creating a I don't know, like a field trip somewhere because being honest with you, a lot of chefs come from backgrounds where they don't see this.
ED-001-M	So we have we need to change that and let's start from you know, let's be a let's be a good employer and get and look after our staff you look you know this retailer they look after their staff this tech company the turnover is one of the lowest because they have a good regime where they look after their staff and that's what you need to do. Stop the abuse if you like.
ED-002-M	But then when you look at, it's always about how to treat it. These people and training always comes into it. Upskilling. Wrapping around their staff, showing them their part of them.
ED-002-M	I think I would. Uh certainly. Help. Have them stay within the organization Not moving around so much. Maybe Yeah, human Resource management strategy should basically be about training should be about obviously always having a career path, some sort of pathway for them. But that is training, but with the because they're getting them ready for the next step in their career, which makes them feel loved and wrapped around. And though, yeah, I think just implementing the training systems and then sort of they can go get into leadership roles and move forward in their lives somewhere. whether that's within that company or different company, that's fair enough, but they should be all playing a role to improve the industry and the people are working in it.
ED-003-F	So if you've got the HR, then looking at whether that's a chef has been trained prior to the job they're looking on top of the legal requirements that the restaurant has got to do, and also the welfare of their staff as well. And ensuring that the restaurant is complying, that's what I would say that HR would link to.
ED-005-M	And always remember that and there are obviously changing and ever-changing HR laws surrounding working practices, whether that being kitchens or any anywhere life minimum wages, minimum, maximum working hours. Umm, work is right. So on and so forth that has affected the whole kitchen role of the chef, the way in which kitchens operate, we can't do 16 hours, seven days a week anymore. It's apparently it's illegal. I don't know. So I think that has changed. And recruitment has changed, even down to things like theses and my immigration laws.

IS-003-M	It starts firstly from the senior team from the executive chef looking at their staffing levels looking at the environment, the chefs are working in, and this includes human. This includes an HR manager. If you have one within the cycle within the company. Looking at mental health and mental awareness.
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Food Waste

Participant ID	Inductive theme: <i>Increase of food prices - Drive action, not always understood as GHGE impact</i>
CH-003-M	So this is passing on to the younger generations, not only in terms of cost. That was the previous concept of saving all this, but in terms of reducing the food waste so the younger generation is learning a lot about it, plus also all the Facebook and Instagram posts that I do and other chefs they do. This is all about awareness rather than I've done. It is about making aware. I'll give you example my this last year I did the Herb Garden and this year 25 other hotels have done. Ohh Gardens based not only based on me but just seeing that it to create awareness. People see that, yes, that's something we can do as well. And it costs really nothing.
CH-003-M	What people do in restaurants is the cost factor, because obviously with the inflation, what people are putting on the menu has changed a lot.
CH-004-M	(What do you know about greenhouse gas emission reductions or reduction efforts associated with menus and who again would be involved in that?) I mean... I cannot say we see if I really know that ... but I might say that and regarding you know the plastic part, but it's not really related to food. But for instance, if you have the cling film related directly with that by in terms of the..? you know we're talking about like, you know, cows and all this is something that I'm not really into it. but you know to be honest I don't I don't really know the question to answer it but I believe you know if we separate the food already in bins and the oil and all this I'm sure this might reduce already the percentage of it
CH-005-M	Probably four or five days and four five times a day for picking up different active picking up all the time constantly cause it's a beast. You don't have a lot of area and the back anymore. I mean, you don't know these to have these days where we used to have like big bin rooms and stuff like that. They've all gone now because everybody works out how much a square foot of central London is worth that.
CH-007-M	Or even they for example like deliveries every day for small things instead of larger delivery is can be an example of, you know, waste of petrol.

	And obviously that's not financially on their end, but it's just instances where restaurants are being, you know, I know a lot of places just leave through, put on the whole shift leave and hops on, you know, don't really stuff like that. And because again, happy, like chefs, both too long and little to be like, Oh yeah, this is bad. This is bad, so I feel like you before we get a lot of, uh, a lot of stories and tell
CH-009-X	Not, and mainly because capital is, you know, for the most part, capitalism doesn't support waste just cuz it's better for capitalism to be able to sell every single crumb can but it does mean that that's the way the kitchens are set up and so if something is expensive to do something with all requires a bit more time it's often easier to just chuck it away, so the book in many ways was sort of an antidote to all of those things.
ED-001-M	Ohh 14 years I've been a lecturer for and it's been top of my list because I come from an environment where, uhm, budgets were tight. So that leads hand in hand with sustainability.
ED-001-M	I mean, certainly at the college they've got this thing where they're waste all the vegetable wastes can go into. I am. A combustor A compactor that them juices pellets that are umm, fertilizer. A free for anybody to take because they can't sell it because they can't actually say what's in it because it could. It would be different each time, so maybe that, you know, put the restrictions about this free fertilizer that they can use that that one they could set it to.
ED-003-F	But yeah, we're having those conversations more and more, but I think it's leaning more about cost and waste through cost than waste through sustainability, through sustainable sources, possibly, yeah
ED-004-M	So the greenhouse gas side, that's really gonna be not from a chef's point of view, but that's gonna be from a supplier. So dairy farmers, cattle farmers, pig farmers, these are the people that are gonna be the more producing of it. But again, and greenhouse gas emissions. So the third biggest greenhouse gas emission is landfill. So food waste
ED-004-M	I don't think the greenhouse gas side from a chef point of view and they probably wouldn't know about that. There might be something that from them where do we produce greenhouse gas? In our kitchen, we're not the greenhouse gases is by the methane. The food waste that once we've had the food waste it then goes off to a Council. We're not producing greenhouse gas even though they are producing food waste, so that that probably wouldn't come in.
IS-005-F	I think up until we started talking about sustainability, I thought it was maybe a little bit more geared towards in the carbon emissions and food waste in general, but you obviously did come up with questions about sustainability as well and how umm, and how you get people to think about it and how you could get people to attend those things and how they how what would make them read your research or what would make them become engaged with your research

IS-003-T	we know we're destroying the planet and we've got to do something about it and it's things like having forest fires and, you know, people having to wear masks because of air pollution but that so that's catastrophic, things like that to happen means that we have to have to change how we behave. Yeah, it's a difficult concept (climate change) to understand.
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Participant ID	Inductive theme: <i>Opportunity to innovate and USP - Allows creative thinking, tangible and marketable.</i>
CH-003-M	People want to hear these stories and marketing campaign, and when they order the food, so this is one part of where we save that. But then whatever is leftovers, I mean, since I was a chef, you were. If you were given a whole animal nowadays, the chefs, they get filet steaks. They get sirloin steak. We used to get the whole animal and you have to cut it right down. Only thing we were allowed to throw over the eyes and the hair on the tail. This was the only two things allowed to go into the bin. Our chefs would continuously check that so even if it's a newer phenomenon of reducing food waste, this has always been there. The stocks from the herbs would always make a vegetable Stockport or would make a a vegetable stock or a hope stop. So everything that used to go in the bin like egg shells, I use egg shells these days to make a fertilizer for my herb garden
CH-007-M	So there it one of the roles of all chefs because we use surplus and ingredients stuff like from farms and not all of it is but freshest or the. Yeah. The most perfect looking vegetables and then on top of that, sometimes you get too much of 1 vegetable so and both me and all the chefs I work with and have to come up with creative ways to be able to and preserve stuff if we get too much of it as well as and creative ways to use and as much of a vegetable as possible as and leave as little waste as possible.
CH-009-X	So I guess we're visiting certain restaurants such as a well-known zero waste restaurant, or this other sustainable restaurant, which is a zero waste restaurant where everything they do, they have the bin in mind and this one in particular like is they both do.
CH-009-X	using things that grow native to the shores of the UK and finding things that are not used that much but are actually in abundance here and like that to reduce their carbon footprint. And I think particularly the other one as well, they've gone off and done loads of interesting things and the head chef there. He runs also does like an Instagram page
CH-009-X	So we just find a way of using it instead and often that would mean using fermentation practices because it was probably something that we didn't need on the menu like 15 kilos beetroot some random **** like that and you or we don't need this on the what menu. But I guess I don't wanna throw away 15 kilos of beetroot so you end up making

	pickled beetroot, beetroot kimchi, pickled beetroot stems like what else did we do? Some, like beetroot ketchup.
IS-005-F	but I think there are certain chefs, certain male chefs that are very good storytellers.
IS-006-M	Definitely like thinking outside the box. I think what working within this space requires people to do is think about food in a way that they never have before. And so it does require them to lean into their creativity and chef by nature are creative, right? So it's actually around if you are creative like how can we use this creativity to create business benefits, environmental benefits and sometimes cost benefits?
SM-001-F	I was saying about creativity. Umm. Ohh, chefs are really excited about that, but it is still a bit of a job to explain that like vegetarian and vegan food doesn't just need to be salads and it doesn't just need to be junk food like there's a beautiful world in the middle that isn't just Curry, but we're getting there I think.

Participant ID	Inductive theme: <i>Visible and invisible Food waste reduction - Repurposing of foods, accurate bookings and orders</i>
CH-007-M	And see a lot of waste due to like not paying attention enough and stuff like that, there's a lot of and when I used to work in the kitchen in Manchester we have the one chef who would just consistently uh make mistakes through the wrong thing in one thing, and instead of can't instead of calmly just looking at, you know, we've got three woks on the go. What do we need to put in one? It's sort of just loses cool and throws things in something that it shouldn't go in or there was an allergen in one wok we had to then, like, throw away and instead of calmly assessing what he need to do ended up wasting in both more energy and more ingredients
CH-009-X	also I guess one of the things that we used to do is if an order came in that was incorrect unless it was like completely impossible for us to use which is rare and rather than sending it back because we know the other end that the supplier has to throw that away, they're not allowed to then resell it they would not know how long all have been sitting around, they don't know the conditions
CH-009-X	So we just find a way of using it instead and often that would mean using fermentation practices because it was probably something that we didn't need on the menu like 15 kilos beetroot some random **** like that and you or we don't need this on the what menu. But I guess I don't wanna throw away 15 kilos of beetroot so you end up making pickled beetroot, beetroot kimchi, pickled beetroot stems like what else did we do? Some, like beetroot ketchup.
CH-009-X	lots of random things. So yeah, I'm just kind of repurposing rather than sending it back, knowing that the other end is gonna be a problem for the supplier

ED-001-M	I mean, certainly at the college they've got this thing where they're waste all the vegetable wastes can go into. I am. A combustor A compactor that then juices pellets that are umm, fertilizer. A free for anybody to take because they can't sell it because they can't actually say what's in it because it could. It would be different each time, so maybe that, you know, put the restrictions about this free fertilizer that they can use that that one they could set it to.
IS-002-F	So they're including more KPI's around things like food waste, but all to see other carbon or environmental impacts, because of course it's not just all about carbon, but uh. So yeah, I think I think it's patchy. I think in some places it's really good. People get it and then other places they don't, they don't in it.

Participant ID	Inductive theme: <i>Responsibility business dependent - Sustainability manager, restaurant management, head chef</i>
CH-005-M	And now, more specifically, if you think about any activities which might help to reduce food waste or might shift greenhouse gas emissions off of food offer, are there any skills from those you've mentioned or maybe not mentioned, which could help with that in particular? 0:10:57.680 --> 0:10:59.950 CH-005-M I think it's all about awareness and training really. Ohh to make that eat to become a way of working. No, even a way of life, really.
CH-008-M	Greenhouse gas emission uh is the first person involved with is the purchasing manager, as he is the person. That source, the product so don't sell something from Holland, for example, or something from England, so he has less miles to cover. So the van, the car or the boat that comes, that's what your restaurant doesn't travel so far. So that's one thing.
CH-009-X	There is very little kind of discussion around what is the best way that we can avoid doing these things and that's not how I like to work because there is no guidebook on these sorts of things and actually the information is quite sort of like disparate and sporadic to find, there isn't like a consensus on a good way of managing these sorts of things in restaurants. You just have to make up as you go along. OK, it's useful to find out everyone else's opinions, cause somebody might just have a really good strategic brain. That's able to think about ways that we can reduce these things without having to be the person in charge. But because restaurants are very hierarchical, frequently, it's often that the head chef and all restaurant manager decide and just tell everybody else.
ED-001-M	Well, I think this the policy should come down to the exec chef or the companies. And if we are putting on a dish and we want a perfect square of lamb, a lamb rump. OK, we can cut

	that. What happens to the trimmings? Have a plan to utilize the trimmings You're gonna get. Not necessarily. I was a bit of trimmings there. Sticking the freezer will use it later. No, let's have a plan. I thought and I used a rack of lamb three ways and we had a two rack of lamb or two bone rack of lamb which which was roasted off with a crust. A little piece of Canon which we sous vide so you get less waste with the reduction of the cooking. So method to cooking and then all the trimmings. I then put into a fagot and it's using things like the offer as well which are not trendy dishes
IS-002-F	So they're including more KPI's around things like food waste, but all to see other carbon or environmental impacts, because of course it's not just all about carbon, but uh. So yeah, I think I think it's patchy. I think in some places it's really good. People get it and then other places they don't, they don't in it.
IS-003-M	And key things he's been looking out at, is wastage. The group is an events company and they do large high scale volume events and they have really looked into their wastage policy, how they can reduce it, how they can make use of the food. It's a conversation we've had and I've been very happy to put you directly in touch with him
IS-006-F	I think just from my experience as well, I'll add that it needs to be positioned as though it is for everyone within the business, because I think what you often find with sustainability events or conversations around sustainability, it's usually the same job titles, the same types of people there. And actually, it can include anyone within the organization, because anyone can complements it.

Participant ID	Inductive theme: <i>Linked to food offer planning - Linking ingredients across offers and menus</i>
CH-009-X	So for example, Panella sugar that comes from Colombia and we used to get it, it would take three months to arrive, but we would get like 75 kilos and then that would last us for like most of the year like at least through half the year and but that does require quite a lot of planning. And then also knowing that you're gonna wanna use that item for the whole time that you have it.
ED-001-M	Well, I think this the policy should come down to the exec chef or the companies. And if we are putting on a dish and we want a perfect square of lamb, a lamb rump. OK, we can cut that. What happens to the trimmings? Have a plan to utilize the trimmings You're gonna get. Not necessarily. I was a bit of trimmings there. Sticking the freezer will use it later. No, let's have a plan. I thought and I used a rack of lamb three ways and we had a two rack of lamb or two bone rack of lamb which which was roasted off with a crust. A little piece of Canon which we sous vide so you get less waste with the reduction of the cooking. So method to cooking and then all the trimmings. I then put into a fagot and it's using things like the offer as well which are not trendy dishes

ED-004-M	However, fresh stuff, you doing 12 (13), if you have 20 portions, ideally you sell all 20 portions, you've got no wastage when you're preparing something. What can you do with the off cuts and how smartly and how efficiently can you use those because they're paid for when you cost out your prime cuts for what you're doing, what do you do with the off cuts that now paid for you?
SM-001-F	Designing menus too with waste mind. Think and there are some chefs who are fantastic at that and that goes across all levels of chefs. That kind of stuff.

Greenhouse Gas Emissions (GHGE)

Participant ID	Inductive theme: <i>Energy consumption - Use of equipment, transport efficiency and green energy - driven by cost</i>
CH-003-M	Most of the suppliers that come and visit us, they are talking a lot about carbon negativity and there is a form in there's a butcher in Ireland. I give you example what he's done is he's not only become carbon neutral, he's become carbon neutral. Plus all the electricity on the farm is generated by solar power. Now all that solar power that generates for the machines for cutting, chopping lights, it comes from solar power. Anything that's access he gives it to the National Grid. So he's become carbon positive. And so now obviously the meat that comes from. Ireland is much producing, much less carbon miles then.
CH-008-M	But you're also increase the amount of greenhouse gas emission that they do and that I've different techniques, but that's where someone chef needs to practice that skill. So a cooking practice, there's reheating practices.
CH-009-X	I mean, there's a particular chef. I was working with who is particularly conscious around I'm water use and set things up so that we weren't unnecessarily using lots of water to wash various things and set up systems so that we would like just being a bit more thoughtful and that kind of thing
CH-009-X	But I don't really know that much more. Actually, I think ultimately it would be looking at what are we cooking seasonally, where is the food coming from and whether are we trying to support suppliers who support farmers who use more regenerative farming processes, can we afford to use those people in the 1st place because obviously, they're gonna be way more expensive. So I think all of those questions come into play when you're trying to even start the conversation around greenhouse emissions because it has to be

ED-001-M	And it was costing more for the greenhouse to produce the ripe banana than it was to get the banana picked nearly ripe off the tree and transported over. And I couldn't believe when I heard that.
ED-002-M	We're just talking about the food, the food, the food journey, and I say how much gas that's used to produce that different things are much water was used and so on and so forth. And I just kind of would know that wouldn't be able to quote the amounts and stuff, but would know what's happening, what's, what's not good, what's great, that's not good for the environment. Well, I think that it's become very I, uh, trendy. Ohh for pair of saying that everyone is looking at that now it's becoming a bit more trendy is not quite the right word a bit more in our faces and then it's more out there. It's more marketing of whatever, and so it's definitely something I could see the industry and the groups and the big companies jumping on the bandwagon, jumping onto and saying other working GHG of our
ED-002-M	So lots of greenhouses as well the, you know, the heat off of the greenhouses, the energy they're used as well. So and I know that's not greenhouse at admissions as such, but I don't think there's a lot of knowledge, huge amount of knowledge on that really. And it's not something, I mean, we talk about sustainability, we talk about waste and environment, but I don't think we talk about enough. So it's just, yeah, it's bad. I don't think there's enough knowledge on that for menus.
ED-004-M	I saw something recently about a restaurant that doesn't throw their chinaware away and China, you spend a lot of money on glass and China. This is also a resource within there and the staff have now been trained that they put it in a big pot and every three months they've got a glass blower that remelts down all the glass re blows the glass floor, that they've got a Potter that then grounds down the porcelain and remakes their China for them. I thought, wow, so there are people out there. Again, as I say, doing that kind of thing. Think that's probably when I think of human resources
ED-005-M	You know, I've never really been in a restaurant and as I'm cooking, think what's coming out of the chimney of this building, you know, I think certainly we look at the reduction of using fossil fuels. And I mean by that, like turning down the gas or turning off the electricity or moving towards using induction instead of gas because that uses less energy
IS-004-M	I suppose emissions in direct and indirect way. So I guess the main one is using appliances. Is a big one. Sort of knowing that if you have, if you're in a busy kitchen but you're just doing prep, you don't have to turn on everything, just the things that you need. I mean at the easy thing to do is to turn everything on and then it's done because you're not paying the bills.
SM-003-F	I mean, like cooking practices is still like a big part of that. So whether you like cook on gas or like induction, even just like if it's, if you boil it or just steam it like can have quite a big impact. And I guess also just like how cautious you are with your cooking practices like do you leave the burner on the whole time or not

Participant ID	Inductive theme: <i>Local vs. Global - Local and seasonal are seen as key variables; grow your own</i>
CH-003-M	Something that's coming from Australia or something that's coming from Mexico and this is what the onus is people really want to hear that they have a, a, a lemon sole that's been caught in Cornwall rather than something that has been frozen. And it comes from Sri Lanka or comes from Philippines This is 1 aspect of reducing carbon miles, but then also what can be bought locally sustainably. Now lot of fish because of over farming has led to reduction in the fish. Yeah, yeah. Number of fish in the sea. So obviously people want to hear that the we are farming getting only farm seabass or wild sea bass that has been caught sustainability.
CH-003-M	This is the mushroom that's been cut in front of you. So literally the mushrooms have walked from the growing space to the table 15 steps. It cannot be more sustainable than this, so this is another mindset that's coming through and it's very popular, a lot of staff, Canteen, magazine, lot of magazine, newspaper articles, social media has picked up on this fact that this is what diners want to see.
CH-005-M	For as a chef should also understand where the food comes from, and he can't be like, you know, always having mango on the menu the whole year round. You know, because you know, he's got a lot of air miles or. You know, there has to be a season with things that you don't get it unless it's really, really in season.
CH-005-M	Just to follow up question in terms of the foods you're putting on the menu, you touched earlier on this distinction between plant protein and animal protein. Is there anything you've come across either your business is doing or other businesses are doing which would also influence the climate impact? If you like of the food. 0:33:55.60 --> 0:33:58.400 CH-005-M Umm, I think so. Really, it's like, you know, a lot of a lot of restaurants. They grow maybe their own herbs in a little greenhouse thing. Umm. You know these evo is called Evogrow where they have like and that then or you cannot have your own hive bee hives you know produce your own honey whether that's you actually are get someone to do it in the north of London because you're in the center of London you can't have be swarming everyone and you probably don't have a very good

	roof and then you know you you've got your beehives next to your swimming pool so that's not gonna go down very well. So yeah, there's a lot of a lot of restaurants I know like to hire like the London Honey Company or something like this to produce the honey that they're gonna use or you have. Uh, you can engage with the dairy down the road.
CH-006-M	So it I seen that there are farms working in this way and I think a lot of the smaller locally run farms work it's way because they thought much less land and especially when the with when they're doing organic produce as well and you know spraying the chemicals again because when it's much more seasonal produce that we're not traveling. No, travelling 100s and thousands of miles just to get shipped across to us again. We're growing them. We're spraying fertilizer because they're growing at the wrong time of the year. So yeah, I think the bit the best thing that can be done is to look to look locally and to think about the ingredients that are in season and not trying to source things because you've always sourced them or you've always had them and not thought twice about why.
CH-007-M	I've done so general research into, you know, stuff playing carbon offsetting and certain things and as well as looking into you know where you source saying sauce and ingredients locally and as well as growing them. And some restaurants have known to grown, you know, have their own greenhouse to grow their own stuff so that completely cooked out stuff like transport, which, you know, obviously. So this source and stuff locally, so it's not getting flown over, especially stuff like meat and then in general and meat reduction
CH-008-M	So are we like a local farm business we have a like the main question is always do we have a farm because that's what people think like we have a farm and we have some cows. So we go there, we make them or, you know, but I can explain them that as big as we are. It's crazy that we never somehow, but it's actually difficult and not everybody that wants to be sustainable needs to have a farm or needs to have allotment to, you know, cultivate that that stuff.
CH-008-M	Greenhouse gas emission uh is the first person involved with is the purchasing manager, as he is the person. That source, the product so don't sell something from Holland, for example, or something from England, so he has less miles to cover. So the van, the car or the boat that comes, that's what you're restaurant doesn't travel so far. So that's one thing.
CH-009-X	What else would they do so they were doing some other quite fun things there? They also had, like, a garden on their roof, which I guess just cuts down on transport costs and that kind of thing and it was all like, you know, it was all done organically and whatnot as well and so I guess those things really, I suppose also working seasonally. I know that when I work in the kitchen, I tend to work seasonally.

ED-001-M	And it was costing more for the greenhouse to produce the ripe banana than it was to get the banana picked nearly ripe off the tree and transported over. And I couldn't believe when I heard that.
IS-002-F	You look at seasonality, who look at the carbon impact of those dishes or the environmental impacts or the welfare impacts of those dishes
IS-002-F	People used to think sustainable diets is about local umm, and that was kind of it. They would tell you they were doing loads of sustainable stuff and then when you actually asked her what it was, it was just about sourcing locally, which is a can be an important component, but obviously just cause it's local doesn't necessarily mean it's lower impact.
IS-002-F	So that so, so what's really exciting is people now get the carbon like it's carbon, ingredients equal carbon and wider environmental impact, biodiversity impact, welfare impact. You know the thing, but before they just thought ingredients as kind of a local sourcing issue or air/road miles.
IS-004-M	So there are there are there are a few, especially in London and especially abroad, where I've worked like in Copenhagen, who are very rightly conscious one is, for example, from a restaurant in London and Umm, other big restaurants who have like this sort of farm to table approach, the farm to table style of dining is becoming more popular.

Participant ID	Inductive theme: <i>Impact of livestock production - Plant-based is referred to as lower GHGE, but livestock is vital to fertilise the soil</i>
CH-002-F	So all the kitchens I've worked in have been vegan or plant-based kitchens and but that doesn't mean that they're all necessarily environmentally focused.
CH-003-M	Most of the suppliers that come and visit us, they are talking a lot about carbon negativity and there is a form in there's a butcher in Ireland. I give you example what he's done is he's not only become carbon neutral, he's become carbon neutral. Plus all the electricity on the farm is generated by solar power. Now all that solar power that generates for the machines for cutting, chopping lights, it comes from solar power. Anything that's access he gives it to the National Grid. So he's become carbon positive. And so now obviously the meat that comes from. Ireland is much producing, much less carbon miles then.
CH-003-M	Greenhouse gases are basically methane that's produced from the beef. I mean, it's a big thing that companies are talking about it, that it's adding on to the cutting down of the ozone layer, that a lot of methane. This is what it does it and it increases cancer from the direct of the skin. Direct exposure to the skin without the ozone layer and it's this is what it's doing.

	So now companies have started working, finding alternatives to beef. One of the biggest producers of methane and gases. Uh greenhouse gases is methane
CH-005-M	You know, whereas you know you there is a lot of movement towards plant based and whether plant based is actually a very good one for the environment because of the amount of effort it takes to extract that protein or something out of a pea is different from just slaughtering a cow. You know what I mean? You know, we all understand what a cow does to the atmosphere, but equally you need to be able to weigh it up and work out. Does the pea protein on the other hand? Is that a different kind of damage, you know
CH-005-M	We are now moving into the term greenhouse gas emissions and how they might be linked to restaurant menus. What do you know about greenhouse gas emission reduction efforts associated with food offers or menus? And who again would be involved in that? 0:30:44.640 --> 0:30:55.660 CH-005-M Umm, in terms of the any gas emissions we have gone moved away from gas in the kitchen. Now with not fully induction, but there's there is a couple of gas appliances. We did have a yeah, like charcoal carbon burning with BBQ. Did have that? We've moved away, so now that part of it, we reduced massively. Our boiler house has been changed in the in the in the hotel there to now be a lot more economical with the energy that we're using. So really it was a down to our senior management and our technical services was to deal with the fact of this whole eco-friendly emissions that we were because we were an old building and we were really leaking a lot then you know
CH-006-M	I don't wanna say that being vegan is the solution to greenhouse gases, but of course raising animals contribute to that as well. But I think also for me, I don't think part of the problem is just to completely cut that out because it's all part of a chain. And I think the animals play their part in in the process of fertilization for. So I think it it's to look at, I think it's being done in a circular way. You know, uh, how do we do things? So that one thing contributes to the other. So in this case, OK, we have some really high quality, uh livestock that we look after, they look after their land, you know so we can grow stuff on the land, they might eat the grass,

	they might fertilize the grass, they can move them to another patch of the farm and then grow on what this you know in the areas that they're fertilized and left behind.
CH-008-M	And what I know about greenhouse gas emission is everything living my emits greenhouse gas emissions. So if you have other menu that has like are like a steak house, you are like a big furnace greenhouse gas emission because you are contributing to many factories of meat that obviously produce greenhouse has emissions. Also, your veg, veg is I think the like I'm in not a lot of people know that, but vegetables emit, a lot of greenhouse gas emission because. You should think about like how industrial vegetable factories work. They may have a ton of clementines, and they may use five ton of water that travels from 2 miles and things to water those, and the overall amount of greenhouse gas emission that that one Clementine can have is probably superior to a pig sometimes
ED-002-M	His play it food and they'll be doing a nice six course tasting menu stuff, but everything is always like around the meat when I say what do you think is wrong with that being around the meat like and they're like go. Ohh well, let's see what you mean. Like kind of like, well, what, what? How much else? So many small cut of meat though chef, and they will be good at saying, you know, and and what's they understand that we are running low on meat and stuff in 2030 and what we're trying to get the portion sizes to of meat down to 70 grams per person or whatever it is.
ED-003-F	You know we're feeding 3/4 of the soy to the animals are not us, but. And that's just absolutely bonkers. 1:8:12.860 --> 1:8:14.530 Doctoral Researcher That you know me. 1:8:12.760 --> 1:8:18.460 ED-004-M And we then have wastage and so why are we not using biogas? There's people that you know, bio gas is costing more than. 1:8:21.900 --> 1:8:22.650 Doctoral Researcher But OK. Thank you. 1:8:23.90 --> 1:8:24.570 ED-004-M And regular gas. 1:8:24.30 --> 1:8:25.670 Doctoral Researcher Like what? 1:8:24.580 --> 1:8:33.530 ED-004-M So why it's a byproduct and the understanding between methane and CO₂, you know, one of them will break down.

	1:8:34.620 --> 1:8:33.30 Doctoral Researcher I think. 1:8:33.620 --> 1:8:42.190 ED-004-M One of them needs to project drawdown and so again it's I wanna use the word misinformation. We're given a little bit of information. We don't have the big picture. It's like doing a puzzle.
ED-003-F	I think it's a subject that's probably a little bit not people are not too sure about umm. So for me, I'd be looking at things that are using a lot of possibly and it's meat and fish to be you know as well greenhouse admissions obviously about what's going into the environment and how it's going into and why
ED-005-M	I don't know how much consideration we have as chefs and I'm talking quite generically here, but I don't know how much consideration we have for greenhouse gases, particularly so now you know, that's quite a specific area of pollution and quite specific area of ecological issues that production of gases which affect greenhouse. I suppose one of the most significant ones that comes to mind is methane from the production of meat and so cattle production methane Umm well, well, well. the livestock production of methane, which is quite significant contributor to greenhouse gases.
IS-004-M	Umm, in terms of greenhouse gas emission reductions, I mean a huge impact of that is of course the meat that people are serving. So there is some initiatives to reduce meat particularly. Beef and some ruminant animals, lamb and things like that. This is mainly for the kitchen to decide on the menu. I mean, the chef is. This is part of the role of the detailing the menu, so this is ultimately falls down to him or her.
SM-003-F	I think it's mostly like that charter of like, embodied like carbon all the different things. But then also like for example you know the fact that we source from wild farmed, I don't know if you had like that. Yeah. So, I guess you know those are like farming practices that are less impactful for like 1 same ingredient rather than necessarily prioritizing 1 ingredient over another. It's like within the same category, but I'm looking at like, OK, which practices are like and greenhouse gas and stuff like flour in this case.

Participant ID	Inductive theme: <i>Recycling and packaging - Reduced packaging, circular thinking</i>
CH-004-M	As a group we are doing the you know when we were plastic free. So when you're using plain film, we're not, you know, and they endanger seafood or fish species. Species were not were not requiring anything of that, like tuna and all this and as well regarding, you know, like a coffee or chocolate or everything has staff in certified farms in a way.

CH-005-M	There is a directing here in the kitchen that some people would bring their own bottle or something like that to drink out of instead of using wasting paper cups or plastic. Polystyrene was banned as well at one point, so you know we that was actually their own actions. They start to bring their own cup before we even started to introduce it, you know? Yeah.
CH-008-M	But then, in a place such a where I am or such a such big as like a big hotel, especially big hotels, when they cut it to a lot of people and maybe a lot of people at the same time, they find it easier to cook things by method of sous-viding or things like that that would use single use plastic and then they just received that and for them is easier when they do a mass catering for someone they just it's easier to work that way.
CH-009-X	And similarly with one of the previous examples they did a similar thing where we didn't use any blue roll the light paper roll and so in order to do that they then had to have a good stock of like a really good stock of like cloths that you would use like clean things down and they also didn't use any chemicals.
ED-001-M	The other thing we touched on the environment early on, people using these vacpacking now and stuff like that. I think the worst thing I've ever seen was half an onion backpacks in the fridge. And I said, why have somebody done that half onion will get up. Used it within minutes anywhere in the kitchen. But the vac-pack bag has cost 20P, probably worth more than that. Half an onion. That and that's what people think. Ohh vacpack that now Ohh vacpack that now you don't need to vacpack everything. It's knowing how to store and what is gonna be used quick so.

Participant ID	Inductive theme: <i>Linked to food offer planning - Management, procurement, menus, senior chefs responsible</i>
CH-001-M	When we, you know, so the conversation about sustainability and how you build menus in colleges and universities now is at the forefront. So I think maybe the next generation of chefs coming through, that's gonna be one of the. It's a given when you write in a menu on what you're thinking about produce. Is it sustainable? Can I use it? Where's it from? You know. How's the husbandry of being on these animals and stuff, you know? So I think. It will change and it hasn't changed I think.
CH-001-M	CH-001-M: And it's like, OK, we're not allowed to use. We shouldn't use octopus because it can't be measured, so therefore it's on the red on the. Marine Stewardship Council. What's it Is it called? The table? Doctoral researcher: Yeah.

	CH-001-M: But then if you catch it from, I don't know if you've got a day boat and it's going now in Cornwall, and then you've got it on the menu at Bristol. How does that make? Is that OK or is it? you know? Doctoral researcher: yeah. CH-001-M: Yeah. So yeah, for his writing menus is very difficult. Some difficult, but it's tricky.
CH-002-F	So I've definitely, I would say in most kitchens it's been ad hoc discussions. Some of it has been topped down from management, but not in the kitchen, so the kitchen managers are kind of coming on. The kitchen managers are head chefs are coming on board. With what the organizations the businesses management are want.
CH-007-M	And is that especially the type of meat? And I know that beef could be and quite happy with, you know, greenhouse gas per kilogram and. In terms of my own experience that restaurants with that, I wouldn't say I have any but more just to personal interest and seeing how people do it with planning menus. With that in mind, and.
CH-008-M	But you're also increase the amount of greenhouse gas emission that they do and that I've different techniques, but that's where someone chef needs to practice that skill. So a cooking practice, there's reheating practices.
CH-008-M	Greenhouse gas emission uh is the first person involved with is the purchasing manager, as he is the person. That source, the product so don't sell something from Holland, for example, or something from England, so he has less miles to cover. So the van, the car or the boat that comes, that's what you're restaurant doesn't travel so far. So that's one thing.
CH-009-X	using things that grow native to the shores of the UK and finding things that are not used that much but are actually in abundance here and like that to reduce their carbon footprint. And I think particularly the other one as well, they've gone off and done loads of interesting things and the head chef there. He runs also does like an Instagram page
CH-009-X	So for example, Panella sugar that comes from Colombia and we used to get it, it would take three months to arrive, but we would get like 75 kilos and then that would last us for like most of the year like at least through half the year and but that does require quite a lot of planning. And then also knowing that you're gonna wanna use that item for the whole time that you have it.
ED-001-M	I think it's from the head chefs, but the head chefs in the owners and they can it's down to their purchasing. Yeah, that's what I need to look at then and how things are produced. But there was a time when there was a I think there was riping sheds and I'm I stand to be corrected here but there used to be some riping sheds in Germany and another car.

ED-002-M	Yes. So obviously we're measuring these things down from that. So the menu to make it as green as we can. Umm, so very good, very positive thing. But yeah, that's kind of my impression is it's about how far the food has travelled and a much what we're using to cook the food, which is not quite a lot of different things that come into that knows and to measure greenhouse gas emissions.
ED-002-M	His play it food and they'll be doing a nice six course tasting menu stuff, but everything is always like around the meat when I say what do you think is wrong with that being around the meat like and they're like go. Ohh well, let's see what you mean. Like kind of like, well, what, what? How much else? So many small cut of meat though chef, and they will be good at saying, you know, and what's they understand that we are running low on meat and stuff in 2030 and what we're trying to get the portion sizes to of meat down to 70 grams per person or whatever it is.
ED-002-M	So lots of greenhouses as well the, you know, the heat off of the greenhouses, the energy they're used as well. So and I know that's not greenhouse at admissions as such, but I don't think there's a lot of knowledge, huge amount of knowledge on that really. And it's not something, I mean, we talk about sustainability, we talk about waste and environment, but I don't think we talk about enough. So it's just, yeah, it's bad. I don't think there's enough knowledge on that for menus.
ED-003-F	I think it's a subject that's probably a little bit not people are not too sure about umm. So for me, I'd be looking at things that are using a lot of possibly and it's meat and fish to be you know as as well greenhouse admissions obviously about what's going into the environment and how it's going into and why
ED-004-M	So the greenhouse gas side, that's really gonna be not from a chef's point of view, but that's gonna be from a supplier. So dairy farmers, cattle farmers, pig farmers, these are the people that are gonna be the more producing of it. But again, and greenhouse gas emissions. So the third biggest greenhouse gas emission is landfill. So food waste
ED-004-M	I don't think the greenhouse gas side from a chef point of view and they they probably wouldn't know about that. There might be something that from them where where do we produce greenhouse gas? In our kitchen, we're not the greenhouse gases is by the methane. The food waste that once we've had the food waste it then goes off to a Council. We're not producing greenhouse gas even though they are producing food waste, so that that probably wouldn't wouldn't come in.
IS-002-F	Now they really understand that is the largest proportion of their scope three and their scope 3 can make up to 90% of their overall emissions and say it's around 50% is gonna be your ingredients on the plate.
IS-002-F	Since you've just touched on meat, if it's like a really nice pass on, what do you know about greenhouse gas emission reduction efforts associated with menus and who would be involved in that in restaurants? IS-002-F So I think this is the menus whoever is involved in menu design.

IS-002-I	You know they need to be working with the supply chain to talk to find the suppliers who are doing things better and lower impact, lower water, lower everything and supporting them and working out how to pay them the extra premium or whatever they need to support that. They need marketing to be communicating this stuff on the menu so that people know which ones to choose and can indicate their support of it, but also so that the business gets that recognition for that work to enable because there's a big issue, I think that consumers don't know where to go to eat in a line in alignment with their values, cause it's really not clear what people are doing behind the scenes. So for similar to what I said earlier, I think it's everybody's responsibility to decarbonize the many years.
IS-002-F	The other thing I was gonna say is that the really meat focus chains like the Chicken [AZ(R39)] and burger QSR of this world are doing a lot behind the scenes on things like the better chicken initiative and trying to looking at ways to decarbonize that main ingredient.
IS-004-M	Umm, in terms of greenhouse gas emission reductions, I mean a huge impact of that is of course the meat that people are serving. So there is some initiatives to reduce meat particularly. Beef and some ruminant animals, lamb and things like that. This is mainly for the kitchen to decide on the menu. I mean, the chef is. This is part of the role of the detailing the menu, so this is ultimately falls down to him or her.

Working with chefs' best practice

Participant ID	Inductive theme: <i>Time famine of chefs - Busy, but also attached to an image of being busy</i>
CH-002-F	And I think depending on the chef like, they need to kind of see the benefit of them having their voice in something like this. And because again, like, you know, being quite busy and flat out, I think is the hard thing.
CH-006-M	and this is the normal day though, though it was normal day 8:00 o'clock in the morning till after dinner Five days a week, so that took its toll eventually on me.
CH-007-M	Yeah, it's quite hard to organise a lot of the people to allow this chefs to do something at the same time because everyone's schedules just completely all over the place.
CH-009-X	Seeing the practical application, yeah, seeing the practical application and knowing that it is not gonna take up a lot more of their time, it needs to be something that doesn't make them feel more time famished people can go away and learn about all this stuff, but if they find out that's gonna take the next two hours a day and no one's gonna do it.
ED-001-M	Now you in UMS of 18 year old kids working 70. I see hours they they're being killed. They're being they're exhausted, OK, some of the youngsters do have stamina and

	people are saying umm, we're doing this. we're trying to break the why? it's down to we should be looking after our staff and if it means we shut on a Monday or shut on a Tuesday that where we're require and it's not really feasible, maybe that's what we should be doing or sort of not giving them split shifts and double shifts and don't you get more out of a member of staff who you respect then you do if you don't respect him.
ED-005-M	That chefs do downtime for chefs is very precious. I think if he went for more than a couple of hours,
ED-005-M	I need to get back in the kitchen. Now. You know, I need to get things to do. Think a couple of hours? He's probably you want to top out at that
IS-002-F	They're green flash program, so they have is he told you about this? You've got like little cards or I'm not quite sure how, but they basically have materials that each site manager can go through and they're sort of talking points about various different things.
IS-003-M	Yeah, no, just time concentration. And getting people at the right time of year for me. Certain sectors are busy in certain times. Umm. If you look at a central London restaurant, they're just doing summer. The event market is busy up to August, so there's quite a times in there. It's about getting people at the right time to engage with you
IS-006-F	So having the space and time to sit outside of the kitchen and think, and I think that's something that's really important actually because as you we all know when we're in the weeds or we've got loads on, it's really difficult to be creative. And so having the time in space to be creative to blue sky, to brainstorm ideas on how to be better as a really important part.

Participant ID	Inductive theme: <i>In-person - Technology is more common in senior roles, and in-person interaction is most effective.</i>
CH-002-F	Some chefs are still old school and not at all techie, so it really just depends.
CH-002-F	Some chefs are now super techy.
CH-005-M	So when it comes to and training people, we make addition a lot of people have got their phone out so they can remember how to do the dishes and that's how the skills are passed down really.
CH-005-M	And you know you're doing any training topics cause the a lot of training now is done online as well. So that it can be one of those things that you can be added into a curriculum.
CH-005-M	We were trained, we would. I took, for instance the changing of a menu. We do, but like virtually as a spec sheet for people now like it's not in the day though, when we were chefs there, we now do a picture with a recipe, a method, the nutritional values that we can find. There is a step by step guide on how to build.

	Uh, the described as well as we actually stand there and teach the chef what to do. So it's much and I think, uh, a lot of uh restaurants run like that now the you cannot just leave it to chance that they're gonna remember from day to day and the other and the passing down to the next one. Exactly how things are done. It's not that those days, you know, people need to be much more directed. They're much more visual.
CH-006-M	I think it's personal connection. Take it's personal connection and taking them to the places where the food comes from, again taking them to the farm, speaking to the farmers, getting the farmers perspective and point of view, you know, it's so easy to pick up the phone and pick and speak to a food company and the other in the person takes your order. When you have a personal relationship with the person that the food comes from, then I think it changes your whole perspective. So I think it's down to employers to take their staff to the places where their food comes from. And if they can't take their employers to the places come from, then think about why they can't do that.
CH-007-M	Feeling most of it is just through osmosis, just through most chefs I've worked rarely been to like any culinary schools and that a lot of the time it's just experience in kitchens themselves
CH-007-M	the few times I've tried to, you know, communicate via phone or and yeah, email got bit with chefs is. That there's a wide range, There's a very lot of people and I think a lot of them don't have and confidence in like stuff like computer skills and some people do.
CH-008-M	chef will require is depends on the chef itself. Is definitely by research by being interested by looking into. Uh. By defining to books, documentaries are going to schools and practicing, but also by having maybe someone else mentor that showing them that.
CH-008-M	So by giving them instructions or like making creating a course for them or creating a I don't know, like a field trip somewhere
CH-009-X	And so again, we're all practical. People are used to being on our feet doing tasks, so like engaging us like that, be great. And then, like, maybe not just the same, not just lots of telling of information, but yeah, practical application and ability to leave the room maybe once every 45 minutes to an hour. I guess it depends on how often you're breaking up the tasks. If it's just like if it's a lot of just ingesting information, then definitely want every 45 minutes to an hour.
ED-001-M	Like yeah, be interactive. Get the almost like right. I want you to. I did and a thing we've we was making mash and ohh so it knows celeriac puree. And I said, well, I want you to put it in a nutribullet you to put it in a thing you to pass it through a sieve. And which one was the smoothest? So perhaps if you had the room and you divided them into four and

	you said right, I want you to peel a carrot. Each peer a carrot with a knife, peel the carrot with a blunt knife. Use put peeler carrot with for a like a machine that you can peeled carrots in. Uh. And then this look at our end products and see how much we get or what's usable at that product
ED-003-F	And so the skill set, in my opinion, has declined a lot, but also I think this is to due to technology and possibly UM, the use of a lot more technology and fast food type restaurants coming in and not needing so many skilled staff. If you've only got like the huge the wonderful ovens that we're given are the combination ovens that you know can be controlled from an app and it will do it all for you. We've just got a program it in a recipe, so why do you need a chef to do that?
ED-003-F	Maybe like panel discussions. I think teams is quite a good thing because getting people together on a face to face is difficult. We know it's difficult it. I mean ideally face to face is perfect and it's much better cause people tend to engage more and a face to face. However, I think it's about. Getting people initially onto on panels, choosing, choosing key people in industry and to talk about the sub to talk about subject.
ED-005-M	I think there's certainly an ability to cook without the use of or without the overuse of technology and/or equipment.
ED-005-M	like turning down the gas or turning off the electricity or moving towards using induction instead of gas because that uses less energy. That would probably be from a more financial gain perspective in terms of how restaurants produce greenhouse gases. Yeah, I mean, I'm obviously produced more than others.
ED-005-M	but also the wider recognition of or use of the equipment and facilities to accurately and effectively cook the food.
IS-001-F	It needs to. It has to be peer-to-peer or senior staff to Junior chef training. You know, e-learning ticks a box. So we all have to do, you know our manual handle and training.
IS-001-F	On the knee learning module or whatever. But actually you can watch a video telling you how to lift a box, but until you go to lift that box, you can't apply those principles. It's the same with a knife
IS-001-F	I think training and workshops is the best way and or peer-to-peer training and you know so.
IS-002-F	So I think that these very sort of informal, umm, tools and kind of talking points to help people in a really. Unstructured way a I'm told it's very effective and also I understand the demographic to be not massively. I mean, they tech literate these days, cause most people are, but then necessarily kind of computer reading reams of text, kind of that. That's not their natural place.
IS-004-M	So I used reading because that's personally my way of absorbing information, but I think a lot of people might actually have information in a different way. So by listening or going

	to talks, but one way that restaurants can do this really well is letting their chefs go visit their suppliers and be in touch with people who are producing their ingredients.
IS-005-F	Umm, what was an event as some training, but the training is very much ongoing training and it's very much where she's speaking to the Restaurant owner or the chef in advance to find out what it is they're looking for. And then she's trying to design something very much bespoke for each restaurant or restaurant group.

Participant ID	Inductive theme: <i>Competitive and collaborative - engage in friendly competition and enjoy collaborative working</i>
CH-007-M	I think this some people will do staff who probably don't even question. Why all the and? But I think it just speaking to them about the and past experiences is. I think yeah No chefs. Quite talkative to some extent.
CH-007-M	I think chefs are quite open to speaking about you know, like the way they done things in certain kitchens compared to the way they done things and others I think, yeah. Just from personal experience like the so many chefs to like. Ohh, when I was here we used to do this and they're like. Well, yeah, I'm not too sure. I think speaking in person and might be also so what's beneficial..
CH-008-M	You know like a research sort of point of view and we talk about something it's always different but then the chef That's interested into the conversation and then you can throw out the comment be like do you know what? This is from or like you know how it's affecting the environment and things like that
CH-009-X	I think it would be time for people to have the ability to, I think the main thing is info. I think information giving on its own will not be as helpful as information giving with space to think about how to practically apply that in the individual's workplace.
ED-001-M	And they're chefs also love come a bit of competition. See each other. You know, they'll be looking at what they're doing and saying like that. That's their nature. Very, very competitive.
ED-001-M	they just need to be aware and be told why the things are happening and have it. shown in a very engaging way, I guess., a good a good example of it is we do we vacpack three pieces of salmon a six pieces actually I know vacpacking is not great but cook then at 45, 50, 55 and 60 C and we just show them and then we open them and then we look at the different ones and we put them in for different lengths of time just to show and they see that you can see the whole coagulation point when you put them next to each other. Boom, boom, boom.
ED-003-F	And also I mean obviously, yeah, conversation awareness and chefs have big voices. So it's about possibly key people within the industry. Talking now but talking about it a little bit more. UM, it's about education, but changing the way out of, you know, curricula within schools coming up.

ED-003-F	So and also competitions. So we do a huge range of activities with our employers. We also would invite them for, you know, to give opinions as well about our courses and, you know, students progression as well. So we do careers days and as well.
ED-003-F	Maybe like panel discussions. I think teams is quite a good thing because getting people together on a face to face is difficult. We know it's difficult it. I mean ideally face to face is perfect and it's much better cause people tend to engage more and a face to face. However, I think it's about. Getting people initially onto on panels, choosing, choosing key people in industry and to talk about the sub to talk about subject.
ED-005-M	Anecdotal, I think if you ever sat down, you observed the conversation of chefs, and I've noted this before. If you ever sat as an outsider, maybe on another table, 2 chefs that are talking, it would always be. Ohh and then I did this some double blah blah and then and. Ohh well, I did this when I was working in this place. I did it like this and we did this and blah blah blah and the other one we go. Yeah, yeah, yeah. Yeah, cause this one time. I was doing this and doing that very anecdotal and it's very umm, almost not so much one-upmanship. I don't think that, but I think the more in conversations with Chef, there are more stories told in questions asked. Umm, so I think if you wanna get the best out of chefs, I suppose you're you've got a range of different responses, particularly from someone like myself from ED-002-M that we have transitioned into an academic career.
ED-005-M	techniques were approaches. I think if you go through word of mouth and friendship groups or rather, you know acquaintances of Chef to Chef UM. I mean the old adage, if not contacting someone between 11:30 and 2:30 because they're inherent or you know between 6:00 and 9:00, because they're probably gonna be in service and you probably wouldn't get a very good response
ED-005-M	you know you instantly get people's backups, so I think there is that to who's then an understanding and an appreciation of what it is to be a chef or understand the challenges that the restaurant industry face and would provide some kind of affiliation with chefs for them to open up to you.
IS-001-F	Like I speak so fondly about all chefs that I had chefs that I worked with because they shaped my career. And I'm sure there are a lot of them.
IS-003-M	Really, just get to know them. Get to the there need a certain kind of person. There are some chefs that will be very happy to talk about their work. I know two or three that I know would be very happy to talk to you. Be yourself. You, you. You've worked in the industry. You understand the industry. So yeah,
IS-004-M	I think because they they work in an environment that is grossly underpaid and either service to the public, you know, and that they do it from passion and that it's really not about the money. So to do this kind of job, you kind of have to have a socialist mindset, at least a little bit. So I think marketing these kind of things from like a social perspective of like the good

	of the work that it will have on the general population is also a good way to peak their interest
IS-004-M	Something that I've seen worked well is an example of kind of a game using a recipe. So you put a traditional recipe on a screen and then you ask them to change it and make it, you know, more climate friendly in some way, you know, and they have to put the suggestions and then afterwards to discuss this. So that's the discussion is really where the chefs learned from each other and share ideas. And this is the best part, because the you see the balance of them wanting to do more and yeah, you could put a recipe for lasagna and then, you know, say we take out the meat and we make it with lentils.
IS-006-F	I think it will be well received. To be honest, I think chefs are generally collaborative. I are very rarely meet a chef that's introverted, that wants to work on his own. And so I think that collaboration and working with others can only help the process.
SM-001-F	One thing I love about chefs is that so interested in each other.
SM-002-F	I suspect there's quite a lot of kind of knowledge shared internally, so from other people within the business from there, like in our own internal mentors from managers that they have, that they learn a lot from that.
SM-002-F	then we also have like different staff members that actually share like articles they've come across these things, they find interesting. So there's a bit of a like variety in that I think another way as well is when the chefs join or when anyone actually joins, they need to do a few like

Participant ID	Inductive theme: <i>Attention span - Limited head space in business, ADHD common in kitchen teams</i>
CH-003-M	Obviously other properties, but then in their own restaurants, the knowledge given every day, small little task checking like it always used to be.
CH-006-M	So I think it should be little and often rather than long workshops out in one go and that way you don't try to cover too many things at once, you know you can really focus on the and deep dive into one thing because I mean you look at 1 ingredient and then you look at the chain of what goes into producing that one ingredient and you can't explain that in like 5 minutes You look at growing a seed and then you put something into the soil and then you look at putting something into the soil. What? What effect does that have on the soil? What effect does that have on the animals that live in this oil? You know it, there is a lot of depth to things and I think it's hard to cover a lot of depth in

	people. People can't concentrate for that long, but I think it needs to be little enough
CH-006-M	I so I think the key is not so much like ohh go in a week workshop because it's too much information. It's too much information for anyone to remember
CH-009-X	As someone with ADHD at least once every 45 minutes to an hour, so that people ought to be honest, I think it might even be like I think that's useful. But I went to a workshop not too long ago who are like the leading mental Health Organization for people in hospitality and the way that they run their course was that if ever anyone was triggered just because it was difficult topics but also just needed a minute, you were allowed to wander in and out of the room if you needed to. As it turned out, most people kind of didn't, but it did give you the space to be like ohh I need to get a minute to get out of here
ED-001-M	every so if it's an hour and a half, I do sort of. I just cut it in half 45 minutes, you know, snappy bits are good. Umm. And if you're interested, if you're breaking up with a task like a hands-on task for a chef, they'll they'll love that
ED-001-M	Chefs are very visual learners and they will say if you put something there, that's this, I this and this is the result. Yeah, if you can say right, you can grow 10 oranges here now. Next year will be 5. Next year will be 2. There's nonavailable next year the following year because we've ruined the ground by putting so much chemicals in to make the 10
ED-002-M	I will say one thing that you probably should know as well. I do have ADHD, so once I can get a bit bothered
ED-004-M	But this this was an all day workshop. So this was from 8:00 o'clock in the morning through to the to 6:00 o'clock in the evening. And so it was. Everything was broken down into small, manageable pieces
ED-005-M	Depends on type food and type of alcohol. Give him an hour. Give him an hour. Give him a break Give him another hour. Job done.
IS-002-F	10 minute a little 10 minute sessions every week about you know what is carbon? What is climate change? What is?
IS-002-F	They're green flash program, so they have is he told you about this? You've got like little cards or I'm not quite sure how, but they basically have materials that each site manager can go through and they're sort of talking points about various different things.
IS-002-F	So I think that these very sort of informal, umm, tools and kind of talking points to help people in a really. Unstructured way a I'm told it's very effective and also I understand the demographic to be not massively. I mean, they tech literate these days, cause most people are, but then necessarily kind

	of computer reading teams or text, kind of that. That's not their natural place.
IS-003-M	I think again it depends on the person. If I look a lot with chefs, I work and deal with, they would be happy to engage with you. Do they need images? No, they would be able to talk through what they're doing and their own backgrounds and experience. So, I think you just need to engage face to face with some key people.
IS-004-M	Yep. I think, yeah. Definitely something very visual is great. I've been to events where there have been a lot of chefs. Chefs and non-chefs. But umm it's. I think it's good. I think chefs enjoy having a day out of the kitchen through something that is work related every now and then. So, they would definitely be open to this. Presentations that are very academic, I would say would not be the best way to deliver some information. In my experience, that's not the best way for them. Lots of images is great I think
IS-004-M	When I run events and when I've been to events, they've usually been three hours 3 hours with a break in between.
SM-003-F	Umm, there's quite a lot of like on the spot training, so like knife skills like sometimes like our director of food or Executive Chef will go around, sit down with like unit or I guess not sit down, stand up and group with the unit and kind of like check, check and talk about it.

Participant ID	Inductive theme: <i>Shared decision making - Involvement in change expected and needed</i>
CH-002-F	And I think depending on the chef like, they need to kind of see the benefit of them having their voice in something like this. And because again, like, you know, being quite busy and flat out, I I think is the hard thing.
CH-007-M	I feel like, yeah, like the sort of question and you know or like the sort of you know discussion type thing I think where quite well thinking there's so for other people won't be able to fully articulate what maybe after hearing other peoples and input that they be like Oh yeah, I've got the similar and I've had the similar experience or similar story and so yeah I think being able to like.
CH-008-M	So you can understand the knowledge that that person might have, and that person might have no knowledge at all if he has no knowledge at all, then it's I think the best approach is not to have a conversation on that topic, but maybe by sharing ideas and opinions. So if a person can get a bit of knowledge from the actual conversation, rather than maybe getting frustrated because there's no knowledge at all.

CH-003-A	As someone with ADHD at least once every 45 minutes to an hour, so that people ought to be honest, I think it might even be like I think that's useful. But I went to a workshop not too long ago who are like the leading mental Health Organization for people in hospitality and the way that they run their course was that if ever anyone was triggered just because it was difficult topics but also just needed a minute, you were allowed to wander in and out of the room if you needed to. As it turned out, most people kind of didn't, but it did give you the space to be like ohh I need to get a minute to get out of here
ED-003-F	And also I mean obviously, yeah, conversation awareness and chefs have big voices. So it's about possibly key people within the industry. Talking now but talking about it a little bit more. UM, it's about education, but changing the way out of, you know, curricula within schools coming up.
ED-003-F	If you said to me why I'd like you, why don't you come on a foraging trip next week with us? You know, most chefs would be like, Oh my God, that would be amazing. Yeah. Or, you know, you're gonna come on a boat and see you know how far? How far fish are farmed and that is exciting. That's exciting. I'm gonna see something. It's gonna be a bit of action there, and you're gonna and then maybe have something to eat at the end. If you said to me come and cook, then that's just my day job.
ED-005-M	So yeah, I think if you are asking how to get chefs to give you examples of some of these, I think you need to gain trust and confidence. Appreciate the constraints that are on the industry at the moment, but also give them direction and structure to
ED-005-M	Don't walk up to the pass when they're trying to serve a lot of food. That would be a good technique. Umm, you know, be respectful, mindful of the challenges that chefs face daily to.
IS-001-F	Give them our opinion back if that makes sense and to give them their our opinion back. It needs to be in a form and in a way that they can understand and they can relate to and you know.
IS-001-F	Putting somebody with them that understands what they're talking about and understands the impact, so whether that's a hedge F or it's a regional culinary person or it's a sustainability person that understands kitchen processes, then by actually talking to them about what they do on a daily basis and the impact that it has in the environment where they're doing it.
IS-002-F	But also he was talking about how you got to find out what they where they are first and so many people who've done training in the chefs have sort of said people come in like ohh I don't wanna do this plant there or don't wanna do this intuition you know. And then he sort of, you allow them to say, what are your goals at work? You know what have you got to achieve?
IS-002-F	So I would I would go in trying to find out what they want, what they think their objectives are, and then showing them how you're interventions are gonna help them and umm, and also showing them, you know, like the evidence of the cost savings and

	me and also that it isn't gonna be more time in the long run like you know helping them to see if actually you're not prepping a load of food that goes in the bin putting it in the separate bins and just noting down the weight that's actually quicker in the long run.
IS-006-F	And so what's always worked really well for me is making sure that they're part of the decision making progress process. So I told them what the objective is and tell them how I think we should get there. Utilize their feedback and insight on how we actually get there and make them feel as though they're making the decision.
SM-001-F	But I think it is in danger of becoming that because essentially ohh chefs didn't want to change. No, really wants to change. No one gets really excited about change, right? You just have to slowly be encouraged and staff and knowledge about what that means. And I just really get concerned that because people talk, too chefs through food, it's much easier and sexiest to talk to them about meat than it is to talk to them about vegetables.
SM-002-F	I suspect there's quite a lot of kind of knowledge shared internally, so from other people within the business from there, like in our own internal mentors from managers that they have, that they learn a lot from that.

Domain 1: Research team and reflexivity Personal Characteristics

Personal Characteristics

1. Interviewer/facilitator

Which author/s conducted the interview?

Andrea Zick

2. Credentials

What were the researcher's credentials?

PhD Student

3. Occupation

What was their occupation at the time of the study?

PhD students and part-time administrative role in a London restaurant leading sustainability projects.

4. Gender

Was the researcher male or female?

Female

5. Experience and training Relationship with participants.

What experience or training did the researcher have?

Relevant research integrity and ethics and NVivo training at Brunel University, previous experience with a study using a questionnaire, training on systems change facilitation with the School of Systems Change

6. Relationship established

Was a relationship established prior to study commencement?

Relationships with 15 participants were established prior to study commencement; 8 participants were introduced through people contacted for the study.

7. Participant knowledge of the interviewer

What did the participants know about the researcher? e.g. personal goals, reasons for doing the research

The researcher introduced herself, and the study aims to all participants. It was made clear that the researcher had previously worked as a chef and is still working in a part-time role in a London restaurant.

8. Interviewer characteristics

what characteristics were reported about the interviewers/moderator: e.g. bias, assumptions, reasons and interests in the research topic

The researcher is a white German who has settled in the UK. Worked in kitchens in Germany and the UK before a BSc in Nutrition and Health and subsequent career in hospitality management, administration and sustainability. The researcher came to the topic through work in community kitchens cooking from surplus food, thus sees food waste as much as a social issue as an environmental issue. The researcher had also led a food waste project at the business for 3 years at the point of the interviews. Lastly, the researcher worked closely with the HR team and shared an office space with the HR team at her place of work.

Domain 2: Study design

Theoretical framework

9. Methodological orientation and Theory Participant selection

What methodological orientation was stated to underpin the study?

Content analysis

10. Sampling

How were participants selected?

Purposive through a personal network of contacts and snowball through the participants

11. Method of approach

How were participants approached?

Emails.

12. Sample size

How many participants were in the study?

49 people were contacted, and 23 people were interviewed.

13. Non-participation Setting

How many people refused to participate or dropped out? Reasons?

9 declined, nine did not respond to the email, 8 recommended someone else

Time constraints, the perception that they may not have relevant insights to share, not being interested enough, not feeling the study was relevant to them

14. Setting of data collection

Where was the data collected? e.g. home, clinic, workplace

All but one interview was done online via MS Teams. One participant preferred to meet in person but the interview was recorded and transcribed on MS Teams. Participants chose the setting in

when they took part. Some were at home, others in the kitchen, at work in an office. Some interviews were totally private others (at least three) had interruptions by colleagues.

15. Presence of non-participants

Was anyone else present besides the participants and researchers?

All participants were alone; however three interviews were interrupted by colleagues, all chefs. Two were interruptions in person one was a call.

16. Description of sample Data collection

What are the important characteristics of the sample? e.g. demographic data, date

Length of working in/with the sector	2-40 years
Various cultural identities	
Non-Binary	1 (4%)
Women	9 (39%)
Men	13 (57%)

	Number of participants	Average Interview Length	Average years in sector
Industry Stakeholder	6 (26%)	56	19.5
Chef	9 (39%)	47	17.5
Sustainability Manager/Consultant	3 (13%)	51	4.7
Educator/Trainer for chefs	5 (22%)	55	25.4

17. Interview guide

Were questions, prompts, guides provided by the authors? Was it pilot tested?

Yes, there was an interview guide, but this was not pilot tested.

18. Repeat interviews

Were repeat interviews carried out? If yes, how many?

One interview had to be interrupted and was continued on another day, but the questions were not repeated. Thus, there were no repeat interviews.

19. Audio/visual recording

Did the research use audio or visual recording to collect the data?

All interviews were recorded and transcribed with MS Teams.

20. Field notes

Were field notes made during and/or after the interview or focus group?

No as video, were recorded.

21. Duration

What was the duration of the interviews?

The average length was 52 minutes the shorted interview was 23 minutes and the longest 97 minutes.

22. Data saturation

Was data saturation discussed?

Not with the participants but amongst the research group.

23. Transcripts returned

Were transcripts returned to participants for comment and/or correction?

This was offered to all participants; one took up this offer and reviewed their transcript to ensure all names had been anonymised.

Domain 3: analysis and findings

Data analysis

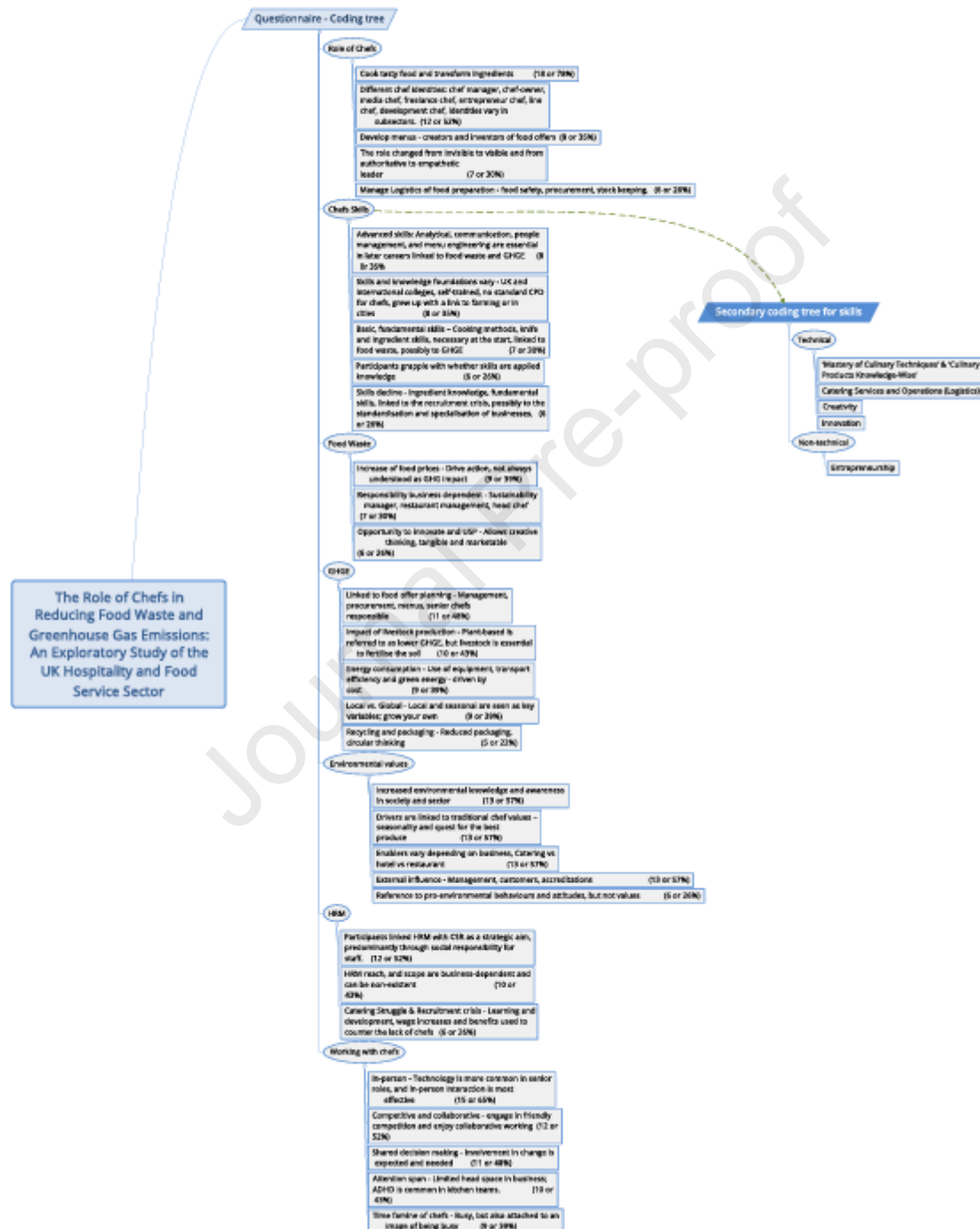
24. Number of data coders

How many data coders coded the data?

There was one data coder in this study.

25. Description of the coding tree

Did authors provide a description of the coding tree?



26. Derivation of themes

Were themes identified in advance or derived from the data?

Both deductive themes were formed through the interview structure and for the skills analysis from the paper of Suhairom et al. (Suhairom *et al.*, 2019)

27. Software

What software, if applicable, was used to manage the data:

NVivo 12.6.1.970

28. Participant checking Reporting

Did participants provide feedback on the findings?

Participants were asked for feedback on the findings through emailed newsletters and in-person conversations.

29. Quotations presented

Were participant quotations presented to illustrate the themes / findings? Was each quotation identified? e.g. participant number

Yes.

30. Data and findings consistent

Was there consistency between the data presented and the findings?

Yes, consistency was quantified by the frequency of mentions for inductive themes.

31. Clarity of major themes

Were major themes clearly presented in the findings?

Yes.

32. Clarity of minor themes

Is there a description of diverse cases or discussion of minor themes

Declaration of interests

☒ The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

☐ The authors declare the following financial interests/personal relationships which may be considered as potential competing interests: