

Bridging the Knowing-Doing Gap in UK Restaurant Food Safety: A Critical Review of Leadership Communication Research

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Abstract

This report critically examines how recent research explains the "knowing-doing gap" in restaurant food-handling compliance and evaluates the philosophical and methodological implications for a proposed DBA study of leadership communication in UK restaurants.

A structured critical literature review was conducted across Scopus, Web of Science, ScienceDirect and Emerald Insight, focusing on research published between 2021 and 2026 alongside seminal theoretical sources, synthesised thematically and examined for its ontological, epistemological and axiological assumptions. One empirical study - Taha, Zanin and Osaili (2024) - was selected for detailed philosophical and methodological analysis.

Food-safety knowledge and training remain necessary but insufficient to explain compliance; COM-B and organisational research on food-safety culture show compliance is shaped by capability, opportunity, motivation and organisational conditions rather than knowledge alone. Recent studies reviewed generally report positive associations between leadership and hygienic practice, but existing research relies predominantly on cross-sectional, self-reported measures establishing association rather than mechanism, and treats leadership as a broad style rather than specific communication behaviour - a gap the reviewed UAE-based selected study does not resolve for a UK restaurant context.

The report reframes leadership from a broad predictor of compliance towards a specific, observable managerial process worth testing directly: leadership communication behaviours may shape the capability, opportunity and motivation conditions through which food-safety knowledge is translated into safe food-handling practice. The analysis supports a critical realist philosophical position and indicates that an exploratory sequential mixed-methods design may provide a defensible basis for the future DBA investigation.

Keywords: food safety culture, knowing-doing gap, leadership communication, behaviour change, COM-B, critical realism

1. Introduction

Food safety in restaurants represents an important organisational and public-health challenge, because safe food handling depends not only on the existence of formal procedures but on their consistent enactment during routine operations. Within the UK, food businesses operate within legally defined food-safety requirements, including supervision, instruction and training of food handlers, and maintaining a documented food-safety management system based on Hazard Analysis and Critical Control Point (HACCP) principles; regulation is devolved across the UK's constituent nations, and in England and Wales the Food Standards Agency's Safer Food, Better Business framework provides widely used guidance (Food Standards Agency, 2023; 2025). However, the existence of training and formal requirements does not establish that appropriate practices will be consistently enacted - the gap between what food handlers know they should do and what they actually do in practice.

This distinction matters because food-safety training research has traditionally concentrated on knowledge, attitudes and self-reported practice. Systematic reviews find relatively strong evidence that training improves knowledge but considerably weaker evidence for behavioural outcomes, with substantial methodological concerns across the evidence base (Young et al., 2019; Young et al., 2020; Insfran-Rivarola et al., 2020). The problem cannot be reduced to a simple deficit of employee knowledge: food-handling behaviour occurs within an organisational environment in which employees respond to managerial expectations, resources and perceived priorities, and recent research on restaurant food-safety culture identifies leadership, management commitment and resources as interrelated dimensions shaping that environment (Kramer et al., 2023). For restaurant managers, the practical problem is therefore not simply how to communicate food-safety rules, but how to sustain their enactment when operational pressures, competing priorities and resource constraints make compliance difficult.

Leadership communication is particularly relevant within this context. Leadership may influence food-safety behaviour by establishing expectations, reinforcing standards, providing feedback and recognising appropriate behaviour, yet treating leadership as a general predictor of compliance leaves an important question unresolved: which communication behaviours actually help translate formal food-safety expectations into routine employee practice? An association between leadership and food-safety outcomes does not by itself establish the mechanism through which behavioural change occurs, so the research problem concerns not merely whether leadership matters, but how leadership communication may function as a mechanism connecting expectations with employee behaviour.

A further issue concerns how food-handling compliance itself is known and measured. Self-reported measures provide insight into perceptions and intentions but may not correspond precisely with behaviour under operational conditions, while observation provides stronger evidence of actual practice but is vulnerable to observer effects. These limitations make measurement itself an important methodological and philosophical issue, addressed directly through the philosophical synthesis in Section 3.6.

Against this background, this report critically examines recent research on the knowing-doing gap in food-handling compliance, with attention to behavioural processes, food-safety culture, leadership communication and intervention implementation, evaluating the ontological, epistemological and axiological assumptions embedded within this literature. In accordance with LCDB7007's requirements, the report then provides a detailed philosophical and methodological analysis of one selected empirical study before considering what these findings imply for an evidence-informed leadership communication intervention in UK restaurants; leadership communication's capacity to reduce the knowing-doing gap is treated throughout as an empirical and philosophical question requiring evidence, not an assumption.

Central Research Question: How do specific leadership communication behaviours influence the translation of food-safety knowledge into routine food-handling practice in UK restaurants?

1. Which specific, observable communication behaviours (rather than broad leadership style) are implicated in food-safety compliance?
2. Through which behavioural mechanisms - capability, opportunity and motivation - might these behaviours operate?
3. Under what organisational conditions is this influence strengthened, constrained or absent?

These questions are addressed through three objectives: to critically synthesise recent research on the knowledge-behaviour relationship, its behavioural and organisational determinants, and leadership's role within it; to evaluate, through philosophical and methodological analysis of one selected study, what a representative empirical approach can and cannot establish; and to identify the implications of this evidence for a future mixed-methods DBA study of leadership communication in UK restaurants.

2. Method for Conducting the Literature Review

A structured critical literature review approach was adopted to identify, compare and synthesise recent research relevant to the knowing-doing gap in food-handling compliance. The review was designed to support critical examination of the theoretical, methodological and philosophical assumptions underlying existing research, rather than to estimate a single overall effect of food-safety interventions, and therefore combined systematic searching with thematic and philosophical analysis.

Search Strategy. The principal search focused on literature published from 2021 to August 2026, with seminal theoretical and methodological sources retained where necessary, including foundational safety-climate and behaviour-change frameworks. Searches were conducted in August 2026 across Scopus, Web of Science, ScienceDirect and Emerald Insight, with Google Scholar used to identify supplementary studies and trace relevant references. Search terms combined the principal concepts of the research problem, iteratively refined and adapted to database-specific syntax using Boolean operators to capture literature addressing individual and organisational influences; the terms shown in Appendix 1 represent the principal concept combinations rather than exhaustive database-specific strings.

Inclusion and Exclusion Criteria. Studies were considered relevant where they examined food-safety knowledge, attitudes, behaviour or compliance; food-safety culture or safety climate; leadership and communication; behavioural-change frameworks; organisational interventions; or implementation within food-service settings, with priority given to peer-reviewed empirical studies and systematic or scoping reviews from the defined period, and UK-based evidence prioritised where available. Studies were excluded where they addressed exclusively microbiological or technical food-safety issues without a behavioural or managerial dimension, or lacked sufficient methodological detail for critical evaluation.

Analytical Procedure. Relevant literature was organised within a literature matrix capturing research context, theoretical framework, methodology, findings, limitations and relevance, then analysed thematically across five interconnected areas: food-safety knowledge and training; food-handling behaviour; food-safety culture and safety climate; leadership and communication; and behavioural-change and implementation approaches, and examined for implicit or explicit ontological, epistemological and axiological assumptions. Methodological quality was judged comparatively rather than through a single formal appraisal instrument, focusing on study design, sampling, measurement, validity, reliability, bias, contextual transferability and the correspondence between claims and evidence.

Limitations. Restricting the principal search period may exclude older studies that remain relevant, though seminal contributions were retained selectively; Google Scholar's use as a supplementary source may introduce variability in coverage; and the literature spans different countries and methodological traditions, limiting direct comparability. These limitations were addressed through critical comparison rather than assuming findings from other food-service contexts transfer directly to UK restaurants.

3. Critical Literature Review

3.1 Food-Safety Knowledge, Training and the Knowing-Doing Gap

Food-safety training has traditionally been positioned as the primary means of reducing unsafe practices: if food handlers acquire appropriate knowledge, they should be better equipped to work safely. This assumption is complicated by two foundational systematic reviews, retained as seminal despite predating this review's primary 2021-2026 search window because they remain the most comprehensive syntheses of training-effectiveness evidence available. Young, Greig, Wilhelm and Waddell's (2019) systematic review and meta-analysis of food-handler training interventions found high-confidence evidence that training improves knowledge but no significant effect on other outcomes, alongside substantial risk of bias in the underlying evidence base, while Insfran-Rivarola et al.'s (2020) meta-analysis of 31 training studies similarly reported a large effect on knowledge but smaller effects on practice, with observed practice notably smaller than self-reported practice - a gap central to the present research problem.

The methodological base of this literature further complicates interpretation. Young, Waddell, Wilhelm and Greig's (2020) meta-regression of 85 single-group pre-post studies found in-person group training dominant and knowledge the most frequently measured outcome, but judged all included studies to carry critical risk of bias due to the absence of control groups; it nevertheless found that interventions informed by formative research and behavioural theory produced larger effects, shifting the question from whether training works towards how it is designed. UK evidence from Kingston and Mitchell's (2023) survey of Liverpool restaurant food handlers similarly found variation between knowledge, attitudes and behaviour, though its small sample limits generalisability.

These methodological tensions also have epistemological implications. Most food-safety research relies on questionnaires that assume self-reported responses adequately represent behaviour, despite known risks from social desirability and recall, while observation offers a stronger indication of actual practice but is vulnerable to observer effects. Mohamed and Evans's (2024) direct observational study of hand-hygiene compliance in a UK sandwich-manufacturing factory illustrates this gap empirically: food handlers attempted hand hygiene on 89% of occasions entering but only 8% when exiting - a discrepancy invisible to any self-report measure - and attempting hand hygiene did not equate to full compliance, since only 1% of observed attempts met the company's own protocol. The method used to measure compliance therefore partly determines what can be claimed about it, challenging a simple positivist

reading in which knowledge functions as an independent variable and compliance as a directly observable outcome.

Training therefore remains necessary but insufficient: it builds knowledge and may support attitude and practice change, but its behavioural effect depends heavily on intervention design and measurement. This reframes the problem away from whether training works and towards the mechanisms and organisational conditions examined in the sections that follow.

3.2 Behavioural Explanations of Food-Handling Compliance

The limitations of knowledge-based explanations create a need to examine the behavioural mechanisms through which food-safety knowledge may, or may not, become practice. The Theory of Planned Behaviour (Ajzen, 1991) and the Capability, Opportunity and Motivation-Behaviour (COM-B) model offer different accounts, valuable less for identifying predictors of compliance than for revealing different assumptions about how behaviour is produced. Mahasuweerachai (2022) integrated TPB with the Norm Activation Model across 325 restaurant employees in Thailand, finding food-safety behaviour directly influenced by behavioural intention and moral norms, with job burnout weakening the intention-behaviour link - challenging an exclusively knowledge-based explanation, since employees may understand requirements yet their behaviour is shaped by social expectations and capacity to enact intentions under occupational strain, though TPB's emphasis on intention as the proximal determinant leaves the organisational conditions enabling or constraining its enactment under-explained.

The COM-B model, developed by Michie, van Stralen and West (2011), offers a broader account in which behaviour depends on the interaction of capability, opportunity and motivation. Kebbi, Haven-Tang, Redmond and Evans (2025) applied COM-B to hand-hygiene behaviour through 23 semi-structured interviews, identifying barriers across all three domains: psychological capabilities such as habit; physical and social opportunities such as monitoring and peer pressure; and motivational factors including reinforcement - demonstrating that non-compliance can occur even with adequate knowledge and motivation, since a worker may know the correct procedure but face production pressure or inadequate resources. COM-B's breadth is nonetheless a limitation as well as a strength: identifying "time pressure" as a barrier does not explain whether it stems from staffing or management priorities, making the framework more useful as a diagnostic tool than a complete theory. It is worth being precise about what kind of explanation COM-B offers relative to the philosophical position adopted later in this report: COM-B is a behavioural framework identifying which conditions must be present for a behaviour to occur,

whereas critical realism, introduced in Section 3.6, is a philosophy of explanation concerned with why those conditions arise and how they can be known. The two therefore operate at different levels rather than as competing theories, and this report treats COM-B as one input into a critical realist explanation rather than as an alternative to it.

This distinction also affects how the evidence should be interpreted. Research applying TPB and COM-B is often conducted within predominantly post-positivist quantitative designs that treat behavioural constructs as measurable variables, yet constructs such as motivation and social opportunity are themselves shaped by employees' situated workplace experience: a post-positivist reading would ask which COM-B component most strongly predicts compliance across settings, while an interpretivist reading would instead ask how workers themselves make sense of "opportunity" and "motivation" within a particular kitchen or shift - a question the surveyed literature rarely poses. The Behaviour Change Wheel extends COM-B's usefulness by linking behavioural diagnosis to intervention functions - feedback may address motivation, clearer instructions may support capability, and communication may alter social opportunity - providing an important bridge to leadership communication: communication may represent an observable managerial process through which underlying organisational and agentic causal powers influence these conditions, though its effectiveness cannot be assumed independently of the environment in which it occurs.

A further limitation is that behavioural-model research tends to separate individual behaviour from organisational structure: a questionnaire may identify motivation as a predictor without explaining why it varies, or why a motivated employee may still fail to comply. COM-B therefore remains a useful diagnostic framework rather than a complete causal theory, and should operate within the broader organisational explanation examined next.

3.3 Food-Safety Culture, Safety Climate and Organisational Context

The behavioural perspective developed above demonstrates that capability, opportunity and motivation are themselves shaped by the organisational environment, shifting the analytical focus towards food-safety culture and management commitment. Kramer et al. (2023) developed and validated an empirically derived measure of restaurant food-safety culture from 579 workers across 331 restaurants, identifying four constructs: leadership, management commitment, employee commitment and resource availability. Notably, the leadership construct included communication-related elements such as information sharing alongside food-safety policies and training, suggesting leadership may

operate partly through communicative practices rather than formal authority alone. Yet management-commitment items, such as whether food safety was prioritised when busy, received lower and more variable scores than other dimensions - a gap the authors interpret as the difference between formally established practice and its enactment under pressure.

This organisational reading is reinforced by the distinction between food-safety culture and safety climate, a concept originating in Zohar's (1980) seminal work: safety climate concerns employees' perceptions of organisational priorities, communicated through everyday signals as much as formal policy, whereas food-safety culture is the broader, more stable set of shared values, norms and practices within which those perceptions form. A restaurant may have written procedures and mandatory training while employees observe managers prioritising speed under pressure; such signals can mean knowledge does not translate into behaviour, consistent with the opportunity component of COM-B. Kim, Kim and Lee's (2021) COVID-19 study found communication transparency moderated the relationship between safety climate and safety motivation, though the direction differed between their US and South Korean samples. Safety climate is therefore the more directly relevant concept for the proposed research, since it concerns the situational, day-to-day perceptions that leadership communication most plausibly shapes in the short term, whereas food-safety culture is treated here as the more slowly changing organisational backdrop within which that communication occurs.

This literature nonetheless has important, partly methodological limitations: Zanin, Stedefeldt and Luning's (2021) review of food-safety-culture assessment tools found that quantitative questionnaires dominate the evidence base, with few studies integrating qualitative evidence, while Shea et al.'s (2021) review of 44 safety-climate studies identified substantial inconsistency in how the construct has been conceptualised since Zohar's (1980) original formulation. Much of this evidence measures perceptions and self-reported behaviour, so a strong association between perceived culture and reported compliance may indicate an important relationship without establishing the causal mechanism generating it, and the predominantly cross-sectional design raises the possibility of reciprocal rather than unidirectional relationships.

The organisational literature therefore strengthens but also complicates the knowing-doing argument: it embeds food-handling behaviour within social and organisational conditions without establishing how a manager's specific communication becomes translated into immediate behavioural response. This creates the requirement addressed next: moving from whether an organisation has a

strong food-safety culture towards how organisational priorities are communicated, interpreted and enacted during routine operations.

3.4 Leadership and Leadership Communication

The preceding sections establish that food-handling compliance is shaped by organisational culture and employees' perceptions of priorities, raising a more specific question: how does leadership translate food-safety expectations into everyday behaviour? Taha, Zanin and Osaili (2024) examined 819 food handlers across 54 Dubai food businesses, finding both transformational and transactional leadership positively associated with hygienic practices, partially mediated by job satisfaction and commitment - though its cross-sectional design leaves open the reverse-causality question examined in Section 4.2, a limitation shared by Taha et al.'s (2025) subsequent study of 712 food handlers across 70 UAE restaurants. Harris, Taylor and Murphy's (2025) US-based study offers a complementary perspective, finding that workers' compliance under transactional leadership depended on their sense of responsibility - evidence that a single leadership style operates through more than one behavioural pathway.

This is the central limitation across the literature: existing studies examine leadership largely as style or general perception, whereas the present research is concerned with something narrower - the particular communication behaviours a manager uses during routine food-safety situations, such as explaining procedures and real-time feedback. Operationally, the candidate mechanism under investigation is not "leadership" as a broad construct, but a specific and observable set of communication behaviours; transformational and transactional labels describe broad leadership patterns, but do not specify what a manager actually says or does. Evidence beyond food service supports this disaggregation: Mattson, Hellgren and Göransson (2015) found leaders' safety-priority communication and feedback communication were distinct behaviours operating through different pathways, and Kramer et al.'s (2023) food-safety culture measure bridges the two by operationalising its leadership construct through communication-related activities rather than personality, though it does not identify which behaviours are most influential. A post-positivist design can establish whether transformational and transactional leadership are statistically associated with compliance; qualitative inquiry or direct observation are better positioned to examine what these labels mean moment to moment, during a busy shift.

The evidence suggests leadership operates through multiple mechanisms - communication, commitment, role modelling, feedback - that plausibly map onto COM-B's capability, opportunity and motivation domains: a manager who explains why a procedure matters may strengthen capability, while

communication about staffing constraints, priorities and available resources may shape employees' perceptions of opportunity, and one who recognises safe behaviour may strengthen motivation. This must be treated cautiously, since existing studies provide limited evidence for distinguishing more and less effective communication pathways, and actual staffing levels themselves remain an organisational condition surrounding the pathway rather than a communication behaviour as such. Methodologically, this points towards combining questionnaires with qualitative interviews and workplace observation, moving research from perceived leadership towards observed communication and compliance - the specific gap underlying the proposed intervention: existing research establishes that leadership is associated with hygienic practice, but insufficient evidence connects specific communication behaviours with observed compliance through a theoretically specified mechanism.

3.5 Intervention Design and Implementation: From Behavioural Evidence to Organisational Change

The preceding analysis suggests the knowing-doing gap cannot be addressed through knowledge acquisition alone; the translational challenge is how evidence about capability, opportunity, motivation and organisational culture can be converted into an intervention that changes behaviour and is sustained within routine restaurant operations. The Behaviour Change Wheel (Michie, van Stralen and West, 2011) links a COM-B diagnosis to intervention functions - a capability problem may require training, a motivational barrier persuasion or incentivisation, an opportunity problem environmental restructuring - so a correctly diagnosed mechanism, rather than a default assumption of knowledge deficit, drives intervention design; Kebbi et al.'s (2025) finding that hand-hygiene barriers span psychological, physical and social domains reinforces that behaviour is unlikely to be transformed sustainably through information provision alone.

The implementation literature adds an important organisational dimension and a significant weakness across it is that interventions frequently combine multiple components - training, new procedures, monitoring, communication materials - making it difficult to attribute observed improvement to any single element (see Appendix 5 for a summary of the relevant evidence).

Read together, this evidence indicates that implementation context and attribution are as important as intervention content: if leadership communication is to be evaluated as the active ingredient rather than one component among several, its constituent behaviours must be specified clearly enough to isolate their influence - clarifying procedures may address capability, real-time prompts may support translating intention into action, and feedback may reinforce motivation.

The same communication may be effective in one restaurant because employees lack clarity about procedures, but ineffective in another where inadequate staffing makes compliance difficult - a context dependency that Section 3.6 addresses philosophically. Methodological challenges remain substantial - contamination between groups, managerial turnover and socially desirable self-report - reinforcing the need for multiple sources of evidence. The critical gap is clear: existing evidence supports the importance of behavioural and organisational determinants, but there is limited evidence isolating specific leadership communication behaviours as a mechanism for translating knowledge into observed behaviour in UK restaurant settings, positioning the proposed DBA research as an intervention-development and evaluation study rather than another knowledge-training study.

3.6 Philosophical and Methodological Synthesis: Competing Assumptions and Research Gaps

The literature reviewed above moves progressively from individual knowledge towards behavioural, organisational and intervention-based explanations of food-handling compliance. These traditions embody different assumptions about what constitutes reality, how it can be known, and which evidence should count as credible - assumptions that shape how the knowing-doing gap is conceptualised and addressed.

Ontologically, much food-safety research treats knowledge, leadership and behaviour as measurable phenomena, valuable for testing hypothesised relationships. Yet the same literature demonstrates that food-handling behaviour is socially and organisationally situated, so behaviour cannot be treated as a fixed individual characteristic. The proposed research is therefore philosophically positioned within critical realism and adopts methodological pluralism, following a specific chain: ontology (what exists) treats generative mechanisms as real but not directly observable; epistemology (how those mechanisms can be known) follows from that ontology, since knowledge of them is necessarily partial and theory-laden; and methodology follows in turn, rather than being chosen independently. Bhaskar's (1975) distinction between the real (generative mechanisms that may or may not produce observable events), the actual (events whether or not observed) and the empirical (events actually experienced or measured) clarifies this chain: a manager's leadership communication is better understood not as a generative mechanism in itself, but as an observable practice through which underlying organisational and agentic causal powers may operate, and a questionnaire captures only the empirical layer of workers' perceptions - which is why quantitative association alone cannot establish whether, or how, that process operates, a stronger claim than simply saying "context matters".

Epistemologically, critical realism holds that knowledge of these mechanisms is itself fallible and theory-laden, avoiding what Bhaskar (1975) terms the epistemic fallacy - the assumption that what can be known about reality exhausts what reality actually is. Critical realism does not itself entail mixed methods, but substantively justifies methodological pluralism where different methods investigate different dimensions of a stratified, context-dependent phenomenon (Fletcher, 2017; Zachariadis, Scott and Barrett, 2013): a questionnaire may demonstrate that employees possess knowledge, observation may demonstrate whether it is enacted, and interviews may explain the discrepancy.

Axiologically, food-safety research is explicitly practice-oriented and concerned with preventing harm, requiring reflexivity about how researcher values shape questions rather than licensing preferred conclusions; this has direct ethical weight given the manager-employee power relationship discussed in Section 4.5. A purely quantitative approach struggles to explain how such relationships emerge in context, while a purely qualitative approach is less suited to estimating measurable change, so a sequential mixed-methods design offers a more defensible response, developed further in Section 5 - preferred over a predominantly post-positivist design, which suits estimating relationships between measurable variables but provides limited access to context-dependent processes, and over an interpretivist design, which offers richer insight into how employees and managers understand communication but is less suited to estimating behavioural change across a larger sample. Critical realism is preferred not because it permits mixed methods as a matter of convenience, but because the research question is explicitly concerned with mechanisms operating contingently within organisational contexts - a combination neither position addresses alone.

Synthesising across the review, six interconnected gaps emerge, summarised in Appendix 6 in order of priority: the first three are foundational, theoretical and contextual gaps that establish why the problem matters; the fourth is the mechanism gap this review treats as central; and the fifth and sixth are methodological and implementation gaps that follow from it. The central gap can therefore be stated as follows: the mechanism by which specific leadership communication behaviours translate food-safety knowledge into observed behaviour, under particular organisational conditions, remains insufficiently explained.

Together, these gaps justify investigating leadership communication as the managerial process defined above, rather than a broad predictor, reframing the research question towards how, through which mechanisms, and under what conditions it can translate food-safety knowledge into routine practice - consistent with Pawson and Tilley's (1997) realist evaluation logic, in which causal outcomes

follow from "mechanisms acting in contexts": the more defensible question is not whether leadership communication works, but what works, for whom, and under what conditions. The review therefore establishes a defensible foundation for the proposed DBA intervention while retaining epistemic caution: leadership communication is not yet a demonstrated solution, but a plausible and insufficiently investigated mechanism warranting evaluation (see Appendix 7 for the literature progression underlying this framework).

4. Philosophical and Methodological Analysis of the Selected Study

4.1 Overview of the Selected Study

Taha, Zanin and Osaili (2024) investigated the relationship between leadership styles and food handlers' hygienic practices in food businesses in Dubai, United Arab Emirates, examining whether transformational and transactional leadership were associated with job satisfaction, organisational commitment and hygienic practices, and whether satisfaction and commitment mediated the leadership-hygiene relationship. Data were collected from 819 food handlers across 54 food businesses using a questionnaire, analysed through factor analysis and structural equation modelling (SEM). The study found positive associations between both leadership styles and job satisfaction, commitment and hygienic practices, with satisfaction and commitment acting as partial mediators; the authors conclude that food businesses may benefit from combining both approaches.

The study is well suited to critical analysis on four explicit selection criteria: direct relevance (it sits at the intersection of leadership, organisational commitment and food-handling behaviour), recency (published 2024, within the review's principal search window), empirical strength (a large multi-business sample analysed through SEM), and a direct relationship to the research problem (it tests whether leadership is associated with hygienic practice, the association underlying the present research). Its importance lies not only in its findings but in what its methodology allows those findings to establish, and what it does not.

4.2 Ontology and Epistemology of the Study

Although the authors do not explicitly identify a research philosophy, the study can reasonably be interpreted as displaying characteristics consistent with a broadly realist and post-positivist orientation: leadership styles, job satisfaction, organisational commitment and hygienic practices are treated as identifiable phenomena represented through measurable variables, with the conceptual model assuming relationships between these constructs can be statistically estimated, reflected in its use of Likert-scale measures, factor analysis and SEM. This is defensible for the research question, since leadership behaviours and food-handling practices have observable consequences researchers need some means of operationalising, but it potentially simplifies the socially situated nature of food-handling behaviour: a worker's hygiene behaviour is not a stable personal characteristic but may change according to workload, staffing and supervision, so the study's design provides limited access to the underlying mechanisms of leadership's influence.

A critical realist interpretation would accept that leadership and hygienic behaviour have real organisational consequences while questioning whether the statistical relationship between them provides sufficient evidence about the mechanism generating that relationship. The proposed pathway - leadership shaping commitment, which shapes hygienic practice - is one plausible mechanism, but leadership could equally influence employee perceptions of organisational priorities, access to resources or workplace norms; alternatively, employees who already behave safely may simply perceive their managers more positively. The cross-sectional design cannot decisively distinguish between these possibilities.

Epistemologically, and again without the authors naming this position themselves, the study's design is consistent with a post-positivist quantitative orientation in which knowledge is generated by operationalising theoretical constructs, collecting standardised responses and statistically testing relationships. This has genuine strengths: standardised measurement enabled a relatively large sample of 819 food handlers, and SEM allowed several relationships to be considered simultaneously. The epistemological limitation matters most for the knowing-doing gap specifically: the study measures hygienic practices through questionnaire responses, and the authors themselves acknowledge that self-reported practice may diverge from observed practice due to social-desirability bias, so the study provides relatively strong evidence about reported perceptions but considerably weaker evidence about observed behaviour - connecting directly to the argument in Section 3.6 that the method used to measure compliance partly determines what can be claimed about it. Appendix 8 summarises how this differs, across ontology, epistemology and methodology, from the proposed DBA study's philosophical position.

4.3 Axiology and Researcher Positionality

The authors do not discuss axiology directly, but the study's framing and recommendations are consistent with a largely instrumental value orientation: its guiding concern appears to be organisational effectiveness, with leadership style examined as a lever for improving job satisfaction, commitment and hygienic practice, and the practical recommendation - that businesses combine transformational and transactional leadership - framed in terms of managerial utility rather than employee wellbeing in its own right. This is reasonable for applied food-safety research, but it means questions of power and voice, and the conditions under which employees complete workplace questionnaires about their own managers, receive little explicit attention.

Researcher positionality is not discussed in the study, which is consistent with a conventional quantitative orientation in which positionality is generally less explicitly foregrounded. This omission is significant for the present research context: food handlers completing a questionnaire distributed through their employer, about their own manager's leadership and their own hygienic practice, are answering under conditions where social desirability and perceived risk to employment are plausible influences on response, yet the study does not discuss how data collection addressed this power asymmetry. An interpretivist or critical realist axiology would foreground these value-laden dimensions more explicitly, treating the manager-employee relationship itself as part of what needs to be understood rather than as a background condition of measurement.

For the proposed DBA research, this has a direct implication. A leadership communication intervention conducted with restaurant employees carries the same power asymmetry the selected study leaves largely unexamined, and the researcher's own reflexivity about this relationship - including how participation is framed, how confidentiality is protected, and how findings might affect employees' standing with their managers - becomes part of the research design rather than an incidental ethical formality.

My own positionality as the prospective DBA researcher warrants explicit statement rather than being left implicit. I would be entering participating restaurants as a researcher with a prior professional interest in hospitality management, which brings contextual familiarity but also the risk of assuming shared understanding of "good practice" that employees or managers may not share; this assumption needs to be treated as a hypothesis to be examined rather than a starting premise. My relationship with restaurant owners and managers, who would likely act as gatekeepers granting research access, creates a further tension: managers who agree to participate may be more open to scrutiny than the wider population, and their continued cooperation could plausibly depend on the research producing findings they find useful - a source of potential bias in how questions are framed and findings interpreted. My relationship with employees is differently positioned: as a researcher without direct authority over them I occupy a position outside their reporting line, which may reduce some of the power asymmetry identified above, but I remain someone introduced into the workplace through management, and employees may reasonably treat me as management-aligned regardless of my formal independence. A further source of bias concerns intervention design itself: having proposed leadership communication as a promising mechanism, I have an interest in the research supporting this proposition, which is a reason

to build disconfirming evidence and negative cases explicitly into the analysis plan rather than treating the mechanism as already established.

4.4 Methodological Quality: Reliability, Validity and Trustworthiness

The study uses a cross-sectional quantitative survey design, with data collected from 819 food handlers across 54 food businesses in Dubai, United Arab Emirates, using a questionnaire measuring transactional leadership, transformational leadership, commitment, job satisfaction and hygienic practices on a five-point Likert scale. The relatively large sample provides greater potential statistical precision than many comparable food-handler studies, though adequacy of power also depends on effect size and model complexity. Recruitment used convenience sampling, with ten to fifteen food handlers selected per business, limiting assessment of representativeness since participating businesses and respondents may differ systematically from the wider population; the sample cannot safely be assumed to represent the wider Dubai restaurant population, let alone the UK restaurant sector, where regulatory environments and labour markets plausibly differ. Under the critical realist position adopted in Section 3.6, this is not merely an external-validity limitation: the same generative process may be activated, constrained or expressed differently by different regulatory contexts, so the UAE-UK difference is itself a theoretically relevant condition for the research question. The study therefore provides a relevant empirical comparator, but its transferability to UK restaurants is limited and cannot be assumed.

The use of factor analysis and SEM provides an important basis for assessing construct validity - whether the measurement items actually capture the intended constructs - since the researchers tested statistical relationships between items and underlying constructs rather than assuming questionnaire items automatically represented leadership, commitment, satisfaction and hygiene. Appendix 9 summarises the reliability, validity and clustering statistics reported by the study alongside what each means for the credibility of its claims.

Taken together, these indicators show a measurement model that is statistically well-behaved but epistemically limited: strong internal consistency and factorability establish only that items correlate with their intended constructs, not that the underlying self-reported hygienic-practice scores correspond to employees' actual observed behaviour - a well-fitting measurement model can coexist with a measure that is internally consistent but behaviourally inaccurate. The clustered sample structure and cross-sectional design further limit interpretation: because employees within the same business share leadership, policies and culture, the effective information content of the sample is likely smaller than the

nominal $n=819$, and the single-timepoint, single-instrument design cannot distinguish the proposed leadership-to-practice pathway from equally plausible reverse or reciprocal pathways. These statistics should therefore be read as evidence of measurement quality, not as evidence that the study captures real compliance or its causal determinants.

4.5 Ethical Considerations

The study involved employees reporting on their own workplace practices, which raises ethical considerations that the published article addresses only partially. Food-safety research can involve sensitive workplace issues because reporting unsafe practice may create concerns about managerial judgement or employment consequences, so employees may feel pressure to provide socially desirable responses. The article states that informed consent was obtained, that participation and withdrawal were voluntary, and that data collection complied with general research ethics, but does not report approval from a named ethics committee or institutional review board, nor describe how confidentiality from employers was safeguarded when a hard-copy questionnaire was distributed within the workplace - the fair criticism is not that the study lacked ethical procedure altogether, but that the reported procedure is comparatively minimal on the dimensions most relevant to a manager-employee power asymmetry.

For the proposed DBA research, this has direct design implications: employees would need to understand that participation is voluntary, that individual responses will not be disclosed to managers, and that findings will be reported at an aggregate level. The manager-employee power relationship identified in Section 4.3 is particularly consequential, since managers would potentially be both participants and the individuals whose communication behaviour is being evaluated, requiring separation between developmental feedback and any performance-related use of the data. These requirements are procedural, and procedural ethics alone is not sufficient: participation arranged through an employer may be experienced as coercive regardless of formal consent, employee voice may be suppressed by fear of consequence, and if managers and workers describe the same interaction differently, "compliance" cannot be read from either account alone without considering the workload and power conditions under which it was produced.

4.6 Critical Appraisal and Alternative Methodological Approaches

Taha, Zanin and Osaili (2024) make a genuine contribution: their large sample, multi-business setting, theoretical model and use of SEM provide stronger empirical grounding than a simple descriptive survey, and the mediation analysis offers a plausible account of how leadership relates to hygienic practice

through job satisfaction and commitment. The methodological constraints established in Sections 4.2 and 4.4 - association rather than causation, self-reported rather than observed outcomes, and limited contextual transferability - mean the study provides evidence that leadership is associated with hygienic practice, without specifying which communication behaviours produce change, through what mechanisms, or under what conditions.

An alternative methodological approach helps make this gap concrete. The study's quantitative design answers whether perceived leadership styles are statistically associated with commitment, satisfaction and hygienic practice, but does not explain how managers communicate food-safety expectations during routine operations; semi-structured interviews could explore how managers communicate expectations and why procedures are sometimes bypassed, while workplace observation could capture manager-employee interactions during busy service directly. An exploratory sequential mixed-methods design - qualitative observation and interviews informing a potential evidence-informed communication toolkit, followed by quantitative evaluation of directly observed behaviour - would provide a stronger fit, distinguishing what people perceive, say and actually do.

Strengths: large multi-business sample; theoretically grounded mediation model; formal testing of construct validity and common-method bias rather than an assumption of rigour. **Limitations:** cross-sectional design precludes causal inference; single self-report instrument for every construct; convenience sampling and clustering by business limit external validity to UK restaurants specifically. On balance, the study substantiates that leadership is worth investigating further, but its design cannot substantiate a specific communication mechanism - which is precisely the gap the proposed DBA research is positioned to close.

This critical analysis reinforces the suitability of the present study's critical realist philosophical position and epistemologically pluralist approach, established in Section 3.6. The central lesson from the selected study is therefore not that leadership causes compliance, but that specific communication behaviours - distinguished from leadership style in Section 3.4 - remain insufficiently investigated in UK restaurant settings, which this coursework's proposed research is designed to address.

5. Discussion and Contribution

This section organises the paper's contribution explicitly under the four dimensions required by the assessment brief: theoretical, methodological, management/practice, and DBA research design.

5.1 Theoretical Contribution

Literature review established what is missing from the existing literature: knowledge is necessary but insufficient, behavioural and organisational mechanisms are only partially specified, and recent studies generally report positive associations between leadership and compliance without isolating a communication mechanism. The proposed theoretical contribution is not a new behavioural theory, but the integration of COM-B with leadership communication, understood in the critical-realist terms set out in Section 3.6: combining them reframes leadership not as a general predictor but as a candidate mechanism operating through identifiable behavioural pathways that can, in principle, be observed and tested separately.

The selected-study analysis in Section 4 sharpens this implication: the constraints established there mean Taha, Zanin and Osaili's (2024) evidence supports the relevance of leadership without generalising to the present research context. Kingston and Mitchell's (2023) UK-based study of Liverpool restaurants, discussed in Section 3.1, is accordingly a more direct - if methodologically more limited - source of evidence about the UK setting in which the proposed intervention would operate.

This leads to the proposed contribution of the future DBA research: leadership communication is therefore conceptualised as a candidate mechanism through which organisational and agentic causal powers may influence capability, opportunity and motivation, depending on organisational context. The theoretical value of this integration lies not in combining two established frameworks, but in specifying the organisational pathway through which managerial communication may alter the behavioural conditions identified by COM-B. This distinction matters for what is being claimed at this stage: this coursework's contribution is conceptual and methodological, specifying a candidate pathway and a defensible research design for investigating it, whereas any empirical contribution - demonstrating that the pathway operates, and under what conditions - belongs to the future DBA research itself. Communication behaviours such as explaining expectations, real-time and corrective feedback, recognition and reinforcement during busy periods may influence different components of COM-B - explanation may support capability, feedback may influence motivation, and employee voice may contribute to opportunity - though these remain propositions requiring empirical testing.

5.2 Methodological Contribution

The review indicates that a critical realist, exploratory sequential mixed-methods design may provide the most defensible basis for subsequent investigation (Creswell and Plano Clark, 2018), structured in four phases: qualitative interviews and workplace observation to identify and refine the specific communication behaviours and contextual mechanisms relevant to the knowing-doing gap; development of a candidate communication intervention using these findings together with the COM-B analysis in Section 3.2; quantitative evaluation of the intervention through a controlled or comparison-group pre/post design, where feasible and appropriate to the organisational context, measuring directly observed behaviour rather than a simple before-after comparison vulnerable to history, maturation, managerial turnover and Hawthorne effects; and integration of the quantitative outcomes with the qualitative evidence to explain not only whether behavioural change occurred, but why, and under what conditions.

5.3 Management/Practice Contribution

For restaurant managers, this reframing has a practical implication that differs from how food-safety communication is typically treated. Rather than positioning communication as periodic instruction delivered through training or signage, the evidence reviewed suggests it functions more usefully as an ongoing practice: clarifying expectations at task allocation, responding to operational barriers during service, reinforcing appropriate behaviour when observed, and identifying conditions under which compliance becomes difficult to sustain. This does not imply formal training becomes unnecessary; it implies its translation into practice depends on communication practices current research has not yet specified precisely enough to be actionable.

5.4 DBA Research Design Contribution

The contribution is therefore fourfold, mirroring the structure above: academically, connecting behavioural, organisational and leadership perspectives to explain how food-safety knowledge may become routine practice; methodologically, addressing the limitations of single-method and self-reported measures through integrated qualitative, observational and quantitative evidence; practically, translating evidence about behavioural mechanisms into a potential evidence-informed communication toolkit; and contextually, examining this mechanism within UK restaurant operations, a setting the existing leadership literature - concentrated in the UAE - does not address. This should be read alongside the distinction

drawn above: the literature does not establish that leadership communication will reduce the knowing-doing gap, and the proposed research will instead test whether, and under what conditions, it can do so.

6. Conclusion

This report set out to critically examine how recent research explains the knowing-doing gap in food-handling compliance, and what the philosophical and methodological implications of that literature are for leadership communication research in UK restaurants. The review shows that food-safety training and knowledge remain important but provide an incomplete explanation of food-handling behaviour: knowledge must be considered alongside behavioural mechanisms such as capability, opportunity and motivation, and organisational factors including food-safety culture, safety climate and leadership.

How compliance is measured also shapes what researchers can claim to know about it, a tension confirmed directly in the selected-study analysis. Critical realism provides a defensible philosophical foundation for the proposed research, recognising that food-safety behaviour and organisational conditions have real consequences while acknowledging that observable behaviour does not necessarily reveal the mechanisms generating it. The central judgement of this report is therefore that the knowing-doing gap should not be treated primarily as a deficit of food-safety knowledge: leadership appears relevant, but existing research has not sufficiently established which specific communication behaviours translate food-safety expectations into consistent observed practice, through which mechanisms, or under what conditions - the gap the proposed mixed-methods DBA research, detailed in Section 5, is designed to close.

The proposed research therefore represents an investigable proposition rather than a predetermined solution. Its contribution lies in reframing leadership from a broad predictor of compliance to a specific, testable managerial mechanism examined through a critical realist lens - relevant not only to food-safety management in UK restaurants, but to the wider question of how organisational knowledge becomes translated into everyday practice. The immediate direction for future research is accordingly the exploratory sequential mixed-methods study outlined in Section 5: establishing, through qualitative and quantitative evidence in combination, whether and how leadership communication contributes to meaningful behavioural change, and, critically, why that change occurs in some organisational contexts and not others.

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Appendixes

Appendix 1: Literature Search Strategy

The table below summarises the databases, principal search terms, date range and purpose used to identify the literature reviewed in Section 3, consistent with the search strategy described in Section 2.

Database	Main search terms	Period	Purpose
Scopus	"food safety" AND "food handlers" AND compliance	2021-2026	Core peer-reviewed literature
Web of Science	"food safety culture" AND leadership	2021-2026	Organisational and leadership research
ScienceDirect	"food handling" AND behaviour change	2021-2026	Behavioural and intervention studies
Emerald Insight	leadership AND hospitality AND food safety	2021-2026	Management and organisational literature
Google Scholar	Supplementary searches and reference tracing	2021-2026	Additional relevant and foundational studies

Appendix 2: Literature Review Matrix

The matrix below presents a condensed record of the literature analysis underpinning Section 3, consistent with the analytical procedure described in Section 2.3. It includes 18 of the studies most central to the review's argument, rather than all references cited. Older studies are retained selectively where they provide foundational evidence or theoretical grounding; the principal review emphasis remains on 2021-2026 research.

Author/Year	Context	Theory/Framework	Method	Key Finding	Limitation	Relevance to This Review
Young et al. (2019)	Food handlers, international	Training effectiveness	Systematic review and meta-analysis	Training improves knowledge with high confidence	No significant effect on other outcomes; risk of bias	Establishes knowledge-behaviour gap
Young et al. (2020)	Food handlers, international	Training effectiveness	Meta-regression of 85 pre-post studies	In-person training dominant; theory-informed design produced larger effects	All studies rated critical risk of bias (no control group)	Reinforces measurement/design problem
Insfran-Rivarola et al. (2020)	Food handlers, international	Training effectiveness	Meta-analysis of 31 studies	Large effect on knowledge; smaller effect on observed practice	Self-reported effect larger than observed effect	Supports the knowing-doing gap
Ajzen (1991)	General behavioural theory	Theory of Planned Behaviour	Theoretical/foundational	Intention predicted by attitude, norms, perceived control	Individual-level; organisational context under-specified	Foundational behavioural framework
Mahasuweerachai (2022)	Restaurant employees, Thailand	TPB/Norm Activation Model	Survey (n=325)	Intention and moral norms directly influence behaviour	Organisational mechanisms not explained	Supports behavioural explanation
Michie, van Stralen and West (2011)	General behaviour change	COM-B/Behaviour Change Wheel	Theoretical/foundational	Behaviour depends on capability, opportunity, motivation	Diagnostic framework, not a causal theory	Principal behavioural framework used
Kebbi et al. (2025)	Food-service and food-manufacturing businesses, UK	COM-B	Semi-structured interviews (n=23, 33 stakeholders)	Barriers identified across all three COM-B domains	Qualitative; limited generalisability	Supports organisational-mechanism analysis
Kramer et al. (2023)	Restaurants, USA	Food-safety culture	Scale development (n=579, 331 restaurants)	Leadership, commitment and resources are interrelated constructs	Perceptual, cross-sectional measurement	Supports organisational analysis of leadership
Zanin, Stedefeldt and Luning (2021)	Food-safety culture, international	FSC measurement	Mixed-methods systematic review	Quantitative questionnaires dominate; little qual-quant integration	Highlights the measurement problem itself	Supports methodological critique
Shea et al. (2021)	Safety climate, international	Safety climate	Review of 44 studies	Substantial inconsistency in conceptualisation and measurement	No agreed measurement standard	Reinforces construct-validity concerns
Taha, Zanin and Osaili (2024)	Food businesses, Dubai	Leadership	Survey and SEM (n=819, 54 businesses)	Leadership associated with hygienic practice via commitment/satisfaction	Cross-sectional; self-reported outcome	Selected study for detailed critique
Taha et al. (2025)	Restaurants, UAE	Leadership	Survey (n=712, 70 restaurants)	Both leadership styles associated with commitment and compliance	Perceived leadership; non-UK context	Corroborates and limits selected study

Author/Year	Context	Theory/Framework	Method	Key Finding	Limitation	Relevance to This Review
Harris, Taylor and Murphy (2025)	Restaurants, USA	Transactional leadership	Survey	Compliance linked to sense of responsibility and disciplinary follow-through	Single leadership style examined	Supports disaggregating leadership
Mattson, Hellgren and Göransson (2015)	Healthcare, Sweden	Leader communication	Survey	Safety-priority and feedback communication operate through different pathways	Healthcare, not food-service context	Justifies disaggregating communication behaviours
Sorensen et al. (2021)	Low-wage food-service workers, USA	Intervention implementation	Process evaluation	Implementation shaped by organisational context and employer commitment	Single intervention setting	Supports efficacy/implementation distinction
McCallion et al. (2025)	Food businesses, UK/Ireland	Intervention evaluation	Rapid evidence assessment (20 interventions)	Sustained behavioural change not consistently demonstrated	Heterogeneous interventions limit comparison	Supports attribution-problem argument
Bulochova et al. (2024)	Food-service research, international	Research methodology	Review of 118 studies	Only 28% used mixed methods; 29% used observation	Descriptive review, not causal	Core methodological justification for this review
Mohamed and Evans (2024)	Sandwich-manufacturing factory, UK	Observed behaviour	Direct observation	89% hand hygiene attempted entering vs 8% exiting; only 1% of attempts complied with protocol	Single UK site	Empirically demonstrates self-report/observed gap

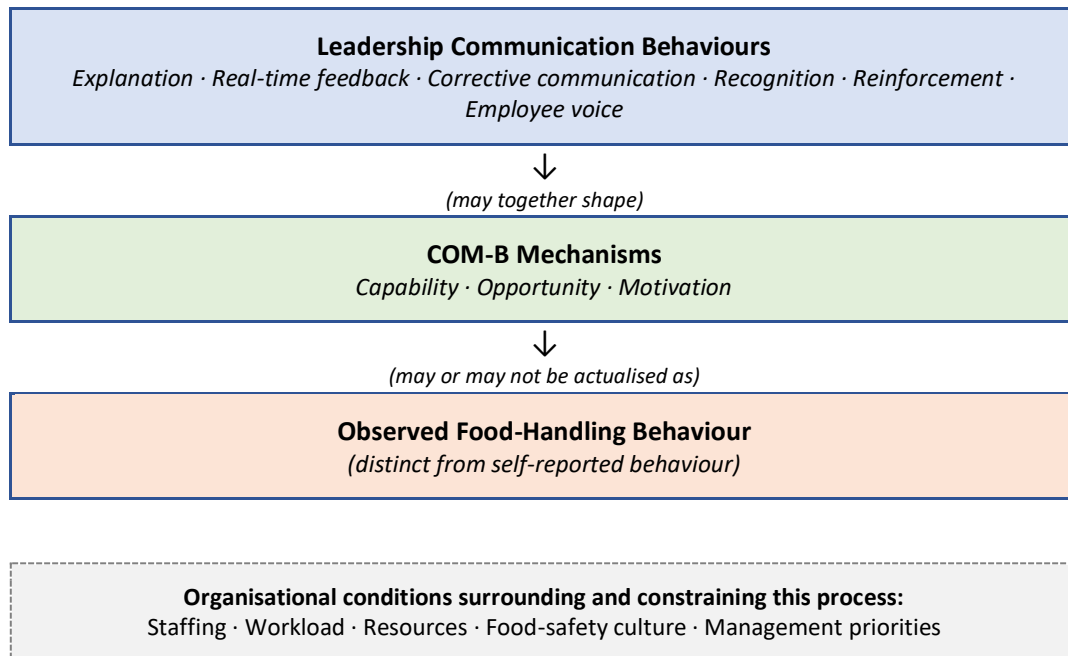
Appendix 3: Critical Appraisal Matrix - Taha, Zanin and Osaili (2024)

The matrix below condenses the detailed critical appraisal of the selected study developed in Section 4, presenting each philosophical and methodological dimension alongside the judgement reached and its implication for the proposed DBA research.

Dimension	Taha, Zanin and Osaili (2024)	Critical Judgement	Implication
Ontology	Constructs (leadership, commitment, hygiene) treated as measurable phenomena	Displays characteristics consistent with a broadly realist orientation, though not explicitly stated by the authors	Provides evidence of association; limited access to underlying mechanisms
Epistemology	Standardised questionnaire, factor analysis and SEM	Not explicitly stated; inferred as consistent with a post-positivist quantitative orientation	Strong for pattern identification; weak for explaining how relationships arise
Axiology	Instrumental, practice-oriented framing focused on managerial utility	Employee voice and power relationships not explicitly foregrounded	Manager-employee power asymmetry requires explicit attention in future design
Design	Cross-sectional survey	Cannot establish temporal sequence; reverse/reciprocal pathways equally plausible	Cannot support causal claims; longitudinal or experimental design needed
Sample	819 food handlers across 54 Dubai food businesses	Relatively large sample; convenience sampling of 10-15 handlers per business raises representativeness concerns and possible within-business clustering	Greater potential statistical precision, though possibly overstated by clustering; limited transferability to the UK given differing regulatory and labour-market context
Measurement	Five-point Likert questionnaire	Standardised but relies entirely on self-report	Risk that reported and observed behaviour diverge
Construct Validity	Factor analysis and SEM applied to measurement items	Factor analysis provides evidence relevant to construct validity: factor loadings 0.489-0.951, KMO=.949, Bartlett's significant. CFI=.930 and RMSEA=.057 indicate broadly acceptable model fit, though these do not by themselves establish construct validity or causal adequacy	Measurement and fit statistics support the model in principle, but the weakest loadings (0.489-0.630) warrant caution about equal item strength
Reliability (Internal Consistency)	Cronbach's alpha reported: 0.700 (commitment) to 0.917 (transactional leadership); all constructs at or above 0.70	Distinct from construct validity; acceptable internal consistency does not establish that self-reported scores match observed behaviour	Internal consistency alone is not sufficient evidence that self-reported hygiene scores reflect actual behaviour
Bias	Single questionnaire, single respondent group for all constructs	Harman's one-factor test conducted: single factor explained 38.75% of variance (below 50% threshold); social-desirability bias also plausible	Reduces but does not conclusively eliminate common-method-bias concern; independent observation still needed to corroborate self-reported outcomes
Ethics	Workplace survey of employees regarding their own manager	Informed consent and voluntary withdrawal reported; no named ethics-committee approval or employer-confidentiality safeguard detailed	Basic procedural ethics were followed; the fair criticism is limited transparency on power-asymmetry and confidentiality dimensions, not absence of ethical procedure
Alternative Methodology	Cross-sectional quantitative design only	An exploratory sequential mixed-methods design would combine perception, interpretation and observation	Directly supports the methodological rationale for the proposed DBA research

Appendix 4: Proposed Conceptual Framework for the DBA Research

This framework is proposed and theoretically derived from the critical synthesis in Section 3.6. It has not been empirically tested or validated, and is presented here to make explicit the theoretical architecture underlying the research question and objectives stated in the Introduction.



This framework should be read alongside Appendix 7 and Section 3.6: it is a heuristic device for organising the review's argument and the proposed DBA research question, not a tested causal model. Consistent with the critical realist position adopted throughout this report, the arrows denote candidate mechanisms and contingent relationships through which underlying organisational and agentic causal powers may operate, rather than confirmed causal pathways.

Appendix 5: Intervention and Implementation Evidence

Study	Design/focus	Key finding	Implication for proposed research
Sorensen et al. (2021)	Process evaluation of an organisational intervention for low-wage food-service workers	Implementation shaped by organisational context; required continuing employer commitment	Assess whether components can realistically operate in the workplace, not only whether they exist
Nagler et al. (2021)	Organisational intervention design	Interventions cannot be designed independently of the organisation in which they operate	Embed the intervention within organisational context from the outset
McCallion et al. (2025)	Review of training/culture interventions	Sustained change not demonstrated consistently despite more favourable outcomes from longer training	Duration alone does not guarantee sustained behaviour change
Spagnoli et al. (2024)	Multi-case study of food-processing organisations	Senior-management involvement, not individual training alone, essential to successful maturation	Leadership involvement must be built into intervention design, not treated as background
Spagnoli et al. (2025)	Structured portfolio of evidence-based interventions	Even a well-specified portfolio does not resolve the attribution problem	Components must be specified clearly enough to isolate leadership communication's influence

Appendix 6: Research Gaps Identified by the Critical Literature Review

Gap	Key evidence	Why it matters	DBA response
1. Knowledge-behaviour gap	Training reliably improves knowledge but less consistently produces behaviour change (Young et al., 2019; 2020; Insfran-Rivarola et al., 2020).	Establishes that knowledge deficit cannot be the primary explanation for non-compliance.	Treated as the foundational premise; not the research focus.
2. Individualistic behavioural explanations	COM-B specifies capability, opportunity and motivation but not their organisational origins (Kebbi et al., 2025).	Behavioural models alone cannot explain why these conditions vary between workplaces.	COM-B retained as a diagnostic framework, embedded within organisational analysis.
3. Culture research relies on perception and cross-sectional data	Kramer et al. (2023); Wang, Miroso, Hou and Bremer (2026) find substantial variation in measurement instruments.	Organisational explanations are contextual but not mechanism-specific.	Used as contextual backdrop rather than the primary investigated mechanism.
4. Communication mechanism unspecified (central gap)	Leadership studies (Taha et al., 2024; 2025; Harris et al., 2025) establish association, not mechanism.	This is the central, unresolved gap the proposed research addresses.	Central focus of the proposed DBA research question.
5. Attribution problem in multi-component interventions	Spagnoli et al. (2024; 2025); Sorensen et al. (2021).	Cannot isolate which intervention component produces observed change.	Intervention design will isolate leadership communication as the tested component.
6. Methodological triangulation underused	Bulochova et al. (2024): only 12% of studies combined cognitive and behavioural measures specifically, distinct from the 28% using mixed methods overall and the 29% including observation.	Self-report alone cannot establish a behavioural mechanism.	Mixed-methods design combining interview, observation and quantitative evaluation.

Appendix 7: Literature Synthesis and Philosophical/Methodological Implications

Literature stream	What it explains	What it fails to explain	Implication	Philosophical/methodological implication
Training/knowledge	Capability and knowledge acquisition	Translation into routine behaviour	Knowledge is necessary but insufficient	Post-positivist measurement is well suited; explains little about context.
Theory of Planned Behaviour	Intention, norms, individual determinants	Organisational mechanisms shaping enactment	Individual-level explanation is incomplete	Individual-level cognition is measurable; organisational mechanisms are not directly observed.
COM-B	Capability, opportunity, motivation	Organisational origins of those conditions	Requires organisational integration	COM-B is a behavioural diagnostic, not a philosophy of explanation; requires embedding within a broader account of causation.
Food-safety culture / safety climate	Organisational context and management commitment	Specific behavioural mechanisms of change	Context matters, but the mechanism remains unclear	Perception-based, cross-sectional measures constrain causal and mechanism-level claims.
Leadership	General managerial influence on compliance	Specific, observable communication behaviours	Leadership must be disaggregated into communication behaviour	Association is measurable quantitatively; mechanism requires qualitative or observational access.
Intervention research	Behavioural and organisational change is achievable	Attribution to specific components and sustainability	Mechanism and implementation must both be tested	Attribution requires designs that isolate components, not only outcome measurement.

Appendix 8: Philosophical Comparison - Selected Study versus Proposed DBA Study

Dimension	Selected study (Taha, Zanin and Osaili, 2024)	Proposed DBA study
Ontology	Leadership, commitment and hygienic practice treated as measurable variables with statistically estimable relationships.	Generative mechanisms treated as real but not directly observable; leadership communication is an observable practice through which they may operate.
Epistemology	Post-positivist: knowledge generated by operationalising constructs and statistically testing relationships between standardised responses.	Critical realist and pluralist: different methods (interview, observation, questionnaire) access different, partial dimensions of a stratified phenomenon.
Methodology	Single-method, cross-sectional quantitative survey (SEM).	Exploratory sequential mixed methods: qualitative phase informing a quantitative evaluation phase.

Appendix 9: Methodological Quality Indicators

Criterion	Statistic reported	What it means for credibility
Construct validity	Factor loadings 0.489-0.951; significant KMO and Bartlett's test	Items statistically load on intended constructs, but the weakest loadings (0.489 transactional-leadership item; 0.630 hygiene items) warrant caution about equal construct representation.
Internal consistency	Cronbach's alpha 0.700 (commitment) to 0.917 (transactional leadership)	Broadly acceptable by convention; commitment scale sits at the lower boundary. Establishes only that items correlate, not that self-report matches actual behaviour.
Common-method bias	Harman's single-factor test: 38.75% of variance (below the 50% threshold)	A genuine strength relative to studies that do not test for this bias at all, but a below-threshold result reduces rather than eliminates the concern.
Sample clustering	819 respondents nested within 54 businesses; no multilevel adjustment reported	Effective sample size is likely smaller than the nominal n=819; standard errors may be optimistic.
Model fit	$\chi^2/df=3.6$; CFI=.930; TLI=.923; IFI=.930; RMSR=.045; RMSEA=.057	Broadly acceptable by conventional thresholds, but acceptable global fit does not establish that the proposed causal structure is uniquely correct.
Design/temporal ordering	Cross-sectional design; single self-report instrument for every construct	Cannot establish temporal sequence; reverse or reciprocal causal pathways remain equally consistent with the data.