

Developing Safety Culture through Integrated Organisational Experience: A Conceptual Framework for Moving Beyond Fragmented Safety Initiatives

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Abstract

Sustainable safety culture requires more than the presence of individual safety initiatives or isolated organisational determinants. This conceptual article develops an integrated framework explaining how leadership, competency, accountability, psychological safety, communication, and organisational learning may collectively shape safety-culture development through their concurrent, coherent, continuous, and mutually reinforcing operation. The framework proposes that these organisational conditions influence culture primarily through employees' cumulative experience of how safety is enacted in everyday work. Through repeated experience, employees interpret organisational safety priorities, learn which behaviours are genuinely supported, and develop expectations that may progressively become socially shared and embedded as safety norms. The article further introduces a humanistic foundation for authentic implementation by drawing conceptually on Rogers' principles of congruence, empathic understanding, and unconditional positive regard. These principles are positioned not as additional safety-culture determinants, but as relational qualities that may influence how integrated safety arrangements are experienced and enacted. Five conceptual propositions are advanced to support future empirical examination of the proposed developmental pathway. The framework contributes to safety-culture theory by reframing fragmentation as developmental incoherence, positioning cumulative employee experience as a bridge between organisational conditions and collective culture, and conceptualising safety-culture development as a recursive learning process. Practical implications are offered for integrated assessment, phased implementation, evaluation, shared organisational ownership, and authentic relational enactment.

Keywords: safety culture; organisational integration; cumulative employee experience; psychological safety; organisational learning; safety leadership; humanistic psychology

Section 1 — Introduction

The development of a sustainable safety culture remains a critical organisational priority, particularly in complex and high-risk work environments. Although advances in engineering controls, regulatory frameworks, operating procedures, and formal safety management systems have substantially strengthened the technical foundations of workplace safety, these mechanisms alone cannot ensure consistently safe organisational performance. The effectiveness of these systems also depends on how individuals interpret risks, make decisions, communicate concerns, respond to organisational expectations, and translate formal safety requirements into everyday behaviour. Consequently,

contemporary approaches to workplace safety increasingly recognise that sustainable safety performance emerges from the interaction between technical systems, organisational conditions, and the psychological and behavioural processes through which employees experience and respond to their working environment (Guldenmund, 2000).

Safety culture is therefore best understood as a multidimensional organisational phenomenon rather than as the product of any single safety intervention or behavioural factor. Its development is influenced by multiple psychological and organisational determinants that shape what employees are able to do, what behaviours are expected of them, whether they feel able to raise concerns, how safety information is exchanged, and how organisations respond to and learn from operational experience. For the purposes of the present framework, six major and closely interdependent determinants are foregrounded: leadership, competency, accountability, psychological safety, communication, and organisational learning. Leadership establishes and demonstrates organisational safety priorities; competency provides the capability for safe performance; accountability reinforces responsible and consistent behaviour; psychological safety enables employees to raise concerns without interpersonal fear; communication facilitates the effective two-way exchange of safety information and feedback; and organisational learning converts operational experience into sustained improvement. Their contribution to safety culture should therefore be considered not only in terms of their individual effectiveness, but also in terms of how they interact and reinforce one another within everyday organisational practice (Bisbey et al., 2021; Khan, 2026).

Despite growing recognition of these determinants, organisational efforts to strengthen safety culture may remain fragmented in practice. Safety improvement is often pursued through initiatives that focus on particular dimensions—such as leadership development, competency enhancement, accountability, employee voice, communication, or learning—without necessarily ensuring that related organisational conditions develop concurrently, remain coherent over time, and mutually reinforce one another (Bisbey et al., 2021; Weaver et al., 2013). Such initiatives may be individually valuable and may improve the specific domain they target (Lee et al., 2019); however, difficulties arise when improvements in one area are unsupported or contradicted by practices in another. For example, employees may be encouraged to speak up while experiencing punitive responses to reported mistakes, or leaders may communicate that safety takes priority while operational decisions continue to reward production at the expense of safe practice. Fragmentation should therefore be understood not primarily as the absence of safety initiatives, but as the isolated, inconsistent, or insufficiently aligned development of interdependent safety determinants, reflected in a lack of **concurrency, coherence, continuity, or mutual reinforcement** in employees' everyday organisational experience.

The effectiveness of a particular safety intervention should not, however, be equated automatically with broader cultural transformation. A leadership programme may strengthen supervisory practices, competency development may improve employees' knowledge and skills, and a communication or speak-up initiative may increase awareness or participation, yet these improvements do not necessarily indicate that the wider organisational culture has changed. Cultural transformation requires newly promoted behaviours and expectations to be supported consistently across the organisational environment and reinforced through repeated everyday experience (Bisbey et al., 2021). Where other determinants remain weak, inconsistent, or contradictory, the influence of an otherwise successful intervention may remain localised or become difficult to sustain. Sustainable safety-culture development therefore involves more than improving individual determinants; it requires organisational conditions in

which improvements across those determinants can operate coherently and reinforce one another, becoming progressively embedded in routine behaviour, shared expectations, and collective norms (Bisbey et al., 2021).

Central to the proposed framework is employees' repeated experience of how safety is actually enacted in everyday organisational life. Formal policies, training programmes, campaigns, and managerial messages communicate what the organisation intends safety to mean, but employees also interpret organisational priorities through what they repeatedly observe and experience: how leaders behave under operational pressure, how mistakes and unsafe actions are addressed, whether concerns can be raised without fear, whether reported issues receive meaningful responses, and whether lessons from experience result in visible improvement (Bisbey et al., 2021). In this sense, information tells employees what safety should be, whereas organisational experience teaches them what safety actually is. When formal safety messages are consistently reinforced by organisational actions, employees are more likely to develop coherent expectations regarding acceptable and valued behaviour. Conversely, when organisational practices contradict formal messages, employees may learn from those contradictions and adjust their behaviour accordingly (Zohar, 2010). Through repetition and social interaction, these experiences may reinforce particular behavioural responses, which can progressively develop into shared expectations and norms regarding how safety is genuinely practised within the organisation (Bisbey et al., 2021).

Although existing safety-culture research has developed integrative models and increasingly recognised the interaction of multiple organisational, psychological, and contextual factors (Bisbey et al., 2021; Vierendeels et al., 2018), comparatively less attention has been directed towards integration as a deliberate process of cultural development, particularly how the alignment or misalignment of interdependent safety determinants shapes employees' cumulative organisational experience and cultural embedding. In particular, there remains a need to distinguish between the implementation of multiple safety initiatives and the development of an organisational environment in which leadership, competency, accountability, psychological safety, communication, and organisational learning operate concurrently, coherently, continuously, and in mutually reinforcing ways. This conceptual article therefore examines how fragmented or insufficiently aligned safety initiatives may constrain broader cultural transformation and develops a framework explaining how the concurrent, coherent, continuous, and mutually reinforcing development of interdependent safety determinants may shape employee experience and interpretation, behavioural reinforcement, shared safety norms, and sustainable safety culture. In doing so, the article shifts attention from whether individual safety initiatives are present or effective in isolation towards how employees experience their combined operation as an organisational system.

Section 2 — Conceptual Approach and Literature Foundation

This article adopts a conceptual theory-building approach to examine how multiple organisational and psychological determinants may operate together in the development of safety culture. Rather than undertaking a systematic review or estimating the independent effects of particular determinants, the article synthesises established theoretical perspectives and relevant empirical literature across safety culture and safety climate, safety leadership, competency, accountability, psychological safety, communication, and organisational learning. These literature streams were considered in relation to a central conceptual question: how might organisational safety determinants that are individually

important become more or less influential when employees experience them as parts of a wider organisational system? The synthesis therefore focuses particularly on relationships among determinants, consistency or contradiction in organisational signals, employee interpretation and behavioural experience, and the processes through which repeated organisational experiences may contribute to shared safety expectations and norms.

The conceptual development of the framework builds on prior work that positioned competency and accountability as central contributors to safety culture while recognising psychological safety, leadership, and organisational learning as complementary and interacting influences (Khan, 2026). The present article extends that foundation by incorporating communication explicitly and by shifting the primary analytical focus from the contribution of individual determinants to the quality of their combined operation. Relevant safety-culture and safety-climate literature provides the basis for conceptualising culture as a dynamic and multilevel phenomenon shaped through organisational signals, behavioural enactment, feedback, learning, and consistency over time (Bisbey et al., 2021; Zohar, 2010). Literature concerning the individual determinants is subsequently used to examine their respective functions and interdependencies, while Rogers' (1957) humanistic principles of congruence, empathic understanding, and unconditional positive regard provide a complementary conceptual foundation for examining the relational quality of implementation. Through this synthesis, the article develops a framework in which determinant integration shapes cumulative employee experience, which in turn informs interpretation, behavioural reinforcement, the development of shared expectations and norms, and continuing safety-culture development. The resulting relationships are expressed as conceptual propositions intended for subsequent empirical examination rather than as empirically established causal relationships.

Section 3 — Safety Culture as an Integrated Organisational Phenomenon

Safety culture should be understood as an organisational phenomenon that develops through the interaction of multiple elements rather than through any single programme, practice, or behavioural influence. Existing integrative research describes safety culture as a relatively stable social construct that is gradually shaped over time by multilevel organisational influences, employee behaviour, learning from behavioural consequences, and consistency in the signals employees receive about safety (Bisbey et al., 2021). From this perspective, leadership decisions, competency arrangements, accountability practices, communication processes, opportunities for employee voice, and organisational responses to operational experience do not influence employees in complete isolation from one another. Instead, they form part of a wider organisational context through which employees interpret what safety means, how strongly it is prioritised, and what forms of behaviour are genuinely expected and supported. Safety culture development should therefore be examined at the level of the interacting organisational system as well as at the level of individual determinants.

Employees do not necessarily interpret organisational safety signals as separate and independent inputs; rather, they form broader perceptions by making sense of patterns across what the organisation communicates, prioritises, supports, rewards, and practises. Safety-climate research has similarly emphasised that employees interpret relationships and relative priorities among organisational policies, procedures, and practices, including the degree of alignment between formally espoused priorities and those enacted through managerial behaviour (Zohar, 2010). Consequently, a leadership message that emphasises safety may acquire a different meaning when experienced alongside production pressure,

inconsistent accountability, restricted opportunities to raise concerns, or weak organisational responses to reported problems. Conversely, when leadership behaviour, accountability practices, communication, employee voice, competency support, and organisational learning convey compatible safety priorities, they can contribute to a more coherent organisational experience. From an employee perspective, therefore, the cultural significance of any single safety determinant may depend partly on the wider pattern of organisational signals within which it is experienced.

The integrated nature of safety culture also has a temporal dimension. Cultural expectations are unlikely to become established through occasional or short-lived organisational signals; rather, they develop as employees repeatedly encounter patterns of behaviour, decisions, consequences, and organisational responses over time. Bisbey et al. (2021) emphasise that safety-culture development depends not only on conditions that enable safe behaviour and employee learning from behavioural outcomes, but also on sufficient consistency and stability over time for safety-related values, assumptions, and norms to become collectively established. This suggests that integration should involve temporal continuity as well as alignment across determinants. Leadership commitment, fair accountability, psychological safety, competency support, communication, and organisational learning therefore need to be experienced not merely as compatible at a particular moment, but as sufficiently sustained features of organisational life. From this perspective, continuity allows mutually reinforcing safety experiences to accumulate, increasing the likelihood that desired behaviours and expectations become embedded rather than remaining temporary responses to individual initiatives (Bisbey et al., 2021).

Taken together, these arguments suggest that safety-culture development should be examined not only through the contribution of individual determinants, but also through the organisational pattern created by their interaction over time. This system-level perspective provides the basis for examining fragmentation as a potential failure to create sufficiently integrated organisational experiences through which consistent safety-related behaviours, expectations, and norms can develop.

Section 4 — The Problem of Fragmented Safety-Culture Development

Organisations may invest substantially in safety improvement while still approaching cultural development through separate or weakly connected initiatives. Leadership programmes, competency training, reporting campaigns, behavioural interventions, communication activities, and learning initiatives may each address legitimate safety needs and may produce beneficial outcomes within their respective domains (Aburumman et al., 2019). The problem, therefore, is not the use of focused interventions themselves, but the assumption that improvements generated within individual domains will necessarily combine to produce broader cultural transformation. Safety-culture development involves a dynamic organisational process in which multiple enabling conditions, employee behaviours, behavioural consequences, and learning processes interact over time (Bisbey et al., 2021). From this perspective, fragmentation arises when safety determinants are developed or implemented without sufficient connection to the wider organisational conditions required to support, reinforce, and sustain their intended effects.

A central difficulty with fragmented development is that employees may be exposed simultaneously to safety signals that point in different behavioural directions. Organisational policies and formal communications may emphasise safety, while everyday managerial decisions, reward practices, responses to mistakes, or production demands communicate competing priorities. Safety-climate research indicates that employees infer organisational priorities from patterns across policies,

procedures, practices, and managerial behaviour, particularly when safety competes with other operational goals (Zohar, 2010). Consequently, an improvement in one determinant may be weakened when another determinant generates an incompatible experience. Leadership may encourage reporting, for example, while punitive accountability discourages disclosure; competency development may strengthen employees' ability to recognise hazards, while limited psychological safety inhibits them from challenging an unsafe decision. Fragmentation therefore matters not merely because safety activities are separated administratively, but because misalignment among them can create contradictory organisational experiences from which employees must determine what behaviour is actually expected, supported, and safe to enact.

The effects of fragmentation may become particularly important when contradictory organisational experiences are repeated over time. Employees learn not only from formal instructions about desired safety behaviour, but also from the consequences that follow when particular behaviours are enacted. Bisbey et al. (2021) conceptualise these behavioural consequences as feedback through which existing safety-related values, assumptions, and norms may be reinforced or revised, highlighting employee learning from behavioural outcomes as an important process in safety-culture development. Accordingly, when formally encouraged safety behaviours repeatedly produce unfavourable organisational consequences—for example, when raising a concern leads to criticism, delay is penalised despite being necessary for safe work, or reporting an error results primarily in blame—the experienced consequence may undermine the intended safety message. Conversely, when safe decisions, reporting, questioning, and learning-oriented responses are consistently supported, organisational experience can reinforce the behaviours and expectations that formal safety initiatives seek to promote. Fragmentation can therefore weaken cultural development when the behavioural lessons generated by one part of the organisational system contradict the safety expectations promoted by another.

Fragmentation may also occur across time when safety-culture development is organised as a succession of short-lived or weakly connected priorities. An organisation may, for example, devote one period primarily to leadership development, subsequently shift attention towards competency or communication, and later introduce initiatives addressing psychological safety, accountability, or organisational learning. Sequential development is not inherently ineffective; however, it becomes problematic when earlier gains are not maintained and integrated with later initiatives. Safety culture develops gradually, and its collective adoption depends partly on employees encountering sufficiently consistent behavioural outcomes and organisational conditions over time (Bisbey et al., 2021). Accordingly, when one cultural priority recedes as another becomes prominent, employees may experience a series of temporary emphases rather than a stable and progressively reinforcing organisational pattern. Temporal integration therefore requires that new safety-culture initiatives build upon, sustain, and interact with previously developed determinants, so that cultural development becomes cumulative rather than episodic.

An integrated approach should not, however, be interpreted as requiring organisations to launch multiple major safety initiatives simultaneously. Because safety culture develops gradually, integration is better understood here as strategically connected and cumulative development rather than simultaneous programme implementation. The more important requirement is that development across safety-culture determinants remains strategically connected: priorities may be introduced or strengthened in phases, but existing determinants should continue to be supported as new ones are developed. Evidence from safety-culture intervention research indicates that change efforts are influenced by factors such as intervention

design, organisational support, duration, and the broader context in which interventions are implemented (Aburumman et al., 2019; Finn et al., 2024). Integration therefore concerns coordinated and cumulative development rather than simultaneous programme overload. A phased approach can remain integrated when each new initiative strengthens, rather than displaces, the organisational conditions established previously and when the combined system continues to communicate a coherent safety priority to employees.

A further risk of fragmented development is that safety initiatives may remain temporary programmes rather than becoming embedded features of organisational practice. An intervention can generate initial awareness, participation, or behavioural improvement without necessarily becoming institutionalised within the routines and systems that continue after the active implementation period. Organisational intervention research suggests that sustainability is strengthened when interventions are aligned with existing organisational objectives and integrated with established practices and processes rather than maintained through separate implementation structures (von Thiele Schwarz et al., 2021). In safety-culture development, this distinction is particularly important because cultural change requires more than temporary exposure to a desired message; employees need continuing organisational experiences that reinforce corresponding expectations and behaviours over time (Bisbey et al., 2021). Fragmentation may therefore occur not only between different safety determinants, but also between a safety initiative and the organisational systems required to sustain it. Integration, by contrast, requires that successful initiatives progressively become incorporated into routine leadership practice, competency processes, accountability arrangements, communication, learning mechanisms, and other relevant features of everyday organisational functioning.

On this basis, fragmented safety-culture development can be conceptualised as a condition in which relevant safety determinants, initiatives, or organisational practices are developed without sufficient alignment, continuity, connection, or mutual reinforcement to create a coherent and cumulative safety experience for employees. Fragmentation may therefore take several forms: determinants may convey conflicting expectations, initiatives may be introduced sequentially without sustaining earlier gains, or improvement programmes may remain detached from the routine organisational systems required to embed them. The defining issue is not whether safety activities are separate in administrative or temporal terms, but whether their combined operation enables employees to experience a sufficiently consistent pattern of safety priorities, expectations, and consequences over time. This distinction is important because safety culture develops gradually through interacting organisational influences, behavioural enactment, feedback, employee learning, and consistency over time (Bisbey et al., 2021). Fragmentation, as conceptualised here, therefore represents a weakness in the developmental coherence of the organisational system rather than simply a shortage of safety initiatives.

Section 5 — The Six Interdependent Determinants of Safety Culture

The proposed framework identifies six interdependent determinants that collectively shape the organisational conditions through which employees experience safety: leadership, competency, accountability, psychological safety, communication, and organisational learning. The following sections examine the distinct function of each determinant and its relationship with the wider safety-culture system.

Section 5.1 — Leadership

Leadership is a foundational determinant of safety culture because leaders translate organisational safety

priorities into visible decisions, behaviours, expectations, and resource commitments that employees can observe in everyday work (Clarke, 2013; Lyubkyh et al., 2022). Safety-leadership research demonstrates that leadership is associated with both employees' perceptions of safety climate and their safety behaviour. In particular, meta-analytic evidence indicates that transformational leadership is positively associated with perceived safety climate and safety participation, whereas active transactional leadership is associated with safety climate, safety participation, and safety compliance (Clarke, 2013). More recent systematic review evidence also indicates that safety leadership is not adequately represented by a single leadership style and is fundamentally concerned with how leaders influence others towards improved safety performance (Adra et al., 2024). Within the present framework, the primary function of leadership is therefore to establish, demonstrate, and continually reinforce the organisational priority given to safety through what leaders communicate, decide, support, and personally enact.

Leadership, however, cannot produce an effective safety culture independently of the organisational conditions within which employees experience it. Meta-analytic evidence indicates that leadership behaviours are associated with multiple workplace safety outcomes, while their relative influence varies across leadership forms and contextual conditions (Lyubkyh et al., 2022). The influence of leadership may therefore depend partly on whether other organisational determinants enable employees to respond to the safety priorities that leaders communicate. A leader may encourage employees to report hazards and question unsafe decisions, for example, but such encouragement is unlikely to generate sustained voice if employees anticipate blame, interpersonal risk, or other negative consequences for speaking up. Research has shown that safety-specific transformational leadership can promote safety voice through trust-related mechanisms (Conchie et al., 2012), while psychological safety has also been identified as an important mechanism linking safety leadership with safety performance (Quansah et al., 2023). Within an integrated safety-culture framework, leadership should therefore be understood not as a substitute for accountability, psychological safety, competency, communication, or organisational learning, but as a determinant whose cultural influence is strengthened or constrained by its interaction with these surrounding conditions.

The cultural influence of leadership also depends on the authenticity with which safety values are enacted. In organisational research, behavioural integrity refers to employees' perceptions of alignment between a leader's words and deeds (Simons, 2002). Within the safety context, such alignment is particularly important because employees evaluate whether leaders who verbally prioritise safety also demonstrate that priority through their decisions and actions. Empirical evidence indicates that leader behavioural integrity for safety is associated with favourable occupational safety outcomes and that psychological safety and safety compliance can operate as mechanisms through which this influence occurs (Halbesleben et al., 2013). This principle is conceptually compatible with Rogers' humanistic notion of congruence, which emphasises genuineness and consistency between internal experience, awareness, and outward expression. Although Rogers developed congruence within the therapeutic relationship rather than as a theory of safety leadership, its humanistic logic offers a useful lens for understanding authentic implementation: leaders are more likely to communicate a credible safety commitment when their expressed values reflect what they genuinely believe and are prepared to enact. Within the present framework, therefore, leadership effectiveness depends not only on what leaders say about safety, but also on whether employees repeatedly experience consistency between those messages and leaders' actual conduct.

Authentic safety leadership can be further understood through a humanistic lens. Rogers (1957) identified congruence, unconditional positive regard, and empathic understanding as central relational conditions within person-centred psychotherapy. Although these conditions were formulated for therapeutic relationships and should not be transferred uncritically to organisational leadership, their underlying relational principles offer a useful perspective on how safety systems are enacted through human interaction. Applied conceptually to safety leadership, congruence suggests that leaders should genuinely embody the safety values they communicate; empathy involves seeking to understand employees' experiences, concerns, pressures, and perspectives; and unconditional positive regard highlights the importance of preserving the person's fundamental worth even when behaviour, errors, or performance require correction. This does not imply the absence of accountability: unsafe behaviour and violations may still require appropriate organisational responses. Rather, it distinguishes accountability for behaviour from the devaluation of the individual. Within the present framework, these humanistic principles help explain why technically sound safety systems may have limited cultural influence when those responsible for implementing them behave in ways that employees experience as inauthentic, dismissive, humiliating, or lacking genuine respect.

Section 5.2 — Competency

Competency represents the capability dimension of safety culture: employees must possess the knowledge, skills, and other relevant capabilities required to recognise hazards, understand safety requirements, make informed decisions, and perform work safely. Safety training is an important mechanism through which such capability can be developed. Meta-analytic evidence indicates that workplace safety training improves safety knowledge and motivation as well as safety compliance and participation, although the magnitude of these effects varies across outcomes and organisational contexts (Hutchinson et al., 2022). Safety competency should therefore be understood as broader than the completion of formal training alone. Systematic review evidence describes safety competency as encompassing combinations of safety knowledge, skills, communication, teamwork, and other capabilities relevant to effective safety performance (Rahman et al., 2022). Within the present framework, the primary function of competency is to provide employees with the capability to understand safety demands and translate them into informed and effective action.

Competency, however, should not be equated automatically with safe behaviour. Possessing the knowledge and skills required for safe performance establishes capability, but whether that capability is consistently enacted depends partly on the organisational environment in which employees work. Empirical research supports relationships between safety competence and behavioural compliance, while also indicating that safety competence operates within a broader network of participative and organisational influences (Wang et al., 2021). From an integrated perspective, an employee may be technically capable of recognising a hazard and identifying the appropriate response, yet still remain silent if raising the concern is experienced as interpersonally unsafe; similarly, knowledge of the correct procedure may not translate into action when operational pressures, inconsistent accountability, or leadership behaviour communicate competing priorities. Evidence from safety research further demonstrates meaningful relationships among safety competency, psychological safety, teamwork, and broader safety-culture conditions, reinforcing the importance of considering competence within its organisational context (Mahsoon & Dolansky, 2021). Competency should therefore be understood as an essential enabling condition for safe behaviour rather than a sufficient condition for safety culture:

employees must not only know what safe action requires, but also operate within an organisational system that enables, expects, supports, and reinforces the application of that capability (Khan, 2026). Competency should also be treated as a dynamic organisational capability rather than as a one-time outcome of training or qualification. In safety-critical work, knowledge and skills may deteriorate when they are not practised or refreshed, and evidence from a systematic review indicates that complex competencies can decline over time, with practice and refresher training among the factors associated with better competence retention (Vlasblom et al., 2020). Consequently, organisations need mechanisms that continually sustain and verify employees' capability through appropriate practice, refresher learning, coaching, feedback, and assessment rather than assuming that previous training permanently establishes competence. Within an integrated safety-culture system, this continuing development should also respond to operational experience: incidents, near misses, observations, employee feedback, and organisational learning may reveal emerging competency needs that should feed back into development processes. Competency thus becomes a continuing organisational process that both supports safe performance and evolves in response to what the organisation learns about its work.

Section 5.3 — Accountability

Accountability represents the responsibility dimension of safety culture by establishing that individuals and organisational actors are expected to take ownership of their safety-related decisions, behaviours, and responsibilities. Effective accountability, however, should not be equated with automatic blame or punishment following every error or adverse outcome. Just-culture approaches seek to balance accountability with organisational learning by recognising that human error, behavioural choices, and system conditions may require different forms of response, while maintaining the principle that reckless or knowingly unacceptable behaviour may warrant appropriate consequences (Dekker, 2012). This distinction is important because cultures dominated by fear or blame can inhibit openness and error reporting, whereas fair and transparent approaches to error handling can strengthen trust in reporting and learning processes (van Marum et al., 2022). Within the present framework, the primary function of accountability is therefore to establish clear and consistently applied expectations for responsible safety behaviour while ensuring that organisational responses remain proportionate, fair, and compatible with learning.

Accountability and psychological safety should therefore be treated as complementary rather than opposing conditions. Psychological safety does not imply the removal of performance expectations or freedom from responsibility; instead, it enables employees to raise questions, disclose mistakes, seek help, and express concerns without excessive interpersonal fear. Conversely, accountability without sufficient psychological safety may create conditions in which employees understand that high standards are expected but become reluctant to disclose uncertainty, error, or emerging safety problems. Edmondson's work distinguishes these dimensions by proposing that high psychological safety combined with high performance expectations creates a "learning zone," whereas high expectations combined with low psychological safety can produce an "anxiety zone" in which openness and learning are constrained (Edmondson, 2019). Empirical research has similarly examined psychological safety and accountability as distinct but interacting conditions, with their combination shaping opportunities for learning and responsible performance (Latessa et al., 2023). Within the present framework, effective accountability should therefore establish clear expectations and responsibility while operating within a psychologically safe environment in which employees can acknowledge problems, question decisions, report errors, and participate in learning without inappropriate fear of interpersonal consequences.

A humanistic perspective further clarifies how accountability can remain firm without becoming demeaning or punitive. Rogers' (1957) concept of unconditional positive regard emphasises acceptance and respect for the person rather than making personal worth conditional upon particular experiences or behaviours. Applied conceptually to organisational safety, this principle does not require leaders to approve unsafe conduct, disregard violations, or remove legitimate consequences. Rather, it suggests a distinction between evaluating and responding to behaviour and devaluing the individual who performed it. This distinction is compatible with the broader logic of just culture, which seeks to preserve accountability while avoiding indiscriminate blame and recognising the contribution of behavioural choices and system conditions to adverse events (Dekker, 2012). Employees can therefore be questioned, coached, corrected, or, where justified, subjected to proportionate disciplinary action without being humiliated, labelled as inherently incapable, or treated as lacking personal worth. Within an integrated safety culture, accountability is likely to support learning more effectively when employees experience organisational responses as fair, respectful, and directed towards understanding and improving behaviour rather than attacking the dignity of the person.

Section 5.4 — Psychological Safety

Psychological safety represents the interpersonal condition that enables employees to engage in safety-relevant interpersonal risk taking without excessive fear of embarrassment, rejection, blame, or other negative interpersonal consequences. Edmondson (1999) originally conceptualised team psychological safety as a shared belief that the team is safe for interpersonal risk taking and demonstrated its association with team learning behaviour. In a safety context, this condition is particularly important because many protective behaviours require employees to expose uncertainty or vulnerability: asking questions, admitting mistakes, requesting assistance, challenging an unsafe decision, reporting concerns, or offering information that others may prefer not to hear. A large meta-analytic review subsequently confirmed psychological safety as a meaningful workplace construct associated with important behavioural and performance outcomes across individual and group levels (Frazier et al., 2017). Within the present framework, the primary function of psychological safety is therefore to create the interpersonal conditions in which employees can contribute safety-relevant information, concerns, questions, and learning without inappropriate fear of the interpersonal consequences of doing so.

Psychological safety, however, cannot strengthen safety culture through employee voice alone unless the wider organisational system is capable of receiving and responding to that voice. Employees may feel sufficiently safe to raise a concern, admit an error, or question a decision, but the cultural value of doing so may diminish if communication channels are ineffective, leaders respond defensively, reported concerns receive no meaningful follow-up, or organisational learning processes fail to convert the information into improvement. Research on safety voice conceptualises speaking up as a behaviour through which employees communicate safety concerns in order to prevent harm and indicates that its antecedents and consequences operate across multiple levels of the organisational environment (Noort et al., 2019). Intervention research similarly suggests that psychological safety and speaking-up behaviour are unlikely to be strengthened reliably through educational initiatives alone and recommends multifaceted approaches involving organisational-level action and visible leadership support (O'Donovan & McAuliffe, 2020). Within the present framework, psychological safety should therefore be understood as an enabling condition for safety voice rather than as the complete mechanism of organisational learning: employees must feel able to speak, communication systems must allow their

concerns to reach relevant decision makers, leaders and accountability processes must respond constructively, and learning mechanisms must convert relevant information into organisational action. The interpersonal conditions that support psychological safety can also be illuminated through a humanistic perspective. Rogers' (1957) principles of empathic understanding and unconditional positive regard emphasise an interpersonal relationship in which another person's internal frame of reference is genuinely understood and the person is regarded with fundamental acceptance and respect. Although these principles were developed within psychotherapy and are not equivalent to the organisational construct of psychological safety, their relational logic is relevant to understanding how employees experience interpersonal risk at work. Psychological safety is more likely to develop in environments characterised by interpersonal trust and mutual respect, where individuals can express concerns, questions, or differing views without anticipating rejection or humiliation (Edmondson, 1999; Newman et al., 2017). From a humanistic perspective, leaders and colleagues contribute to such an environment when they seek to understand the employee's perspective before judging the situation and preserve respect for the individual even when disagreement, error, or corrective action is involved. Empathy and positive regard therefore do not replace psychological safety; rather, they represent relational qualities that may help create the respectful interpersonal conditions within which employees become more willing to expose uncertainty, acknowledge mistakes, seek assistance, and raise safety concerns.

Section 5.5 — Communication

Communication represents the information-exchange dimension of safety culture through which safety priorities, hazards, expectations, operational experience, concerns, and feedback are shared across the organisation. Effective safety communication extends beyond the downward transmission of rules, procedures, or managerial instructions; it also requires opportunities for employees to ask questions, report hazards, communicate uncertainty, provide feedback, and contribute information from operational experience. A systematic review of communication in high-risk workplaces identifies communication climate, communication mechanisms, communication effectiveness, and communication satisfaction as important dimensions of safety communication and highlights the value of open and two-way communication for safety commitment and organisational safety practice (Zara et al., 2023). Communication should therefore be understood as a reciprocal organisational process rather than simply an information-delivery mechanism. Within the present framework, its primary function is to enable safety-relevant information to move effectively between employees, leaders, functions, and organisational levels so that hazards can be recognised, expectations clarified, concerns heard, and appropriate action coordinated.

The cultural influence of communication depends not only on whether safety information is transmitted, but also on whether communication is supported by the wider organisational environment and followed by meaningful response. Employees may have access to reporting systems, meetings, briefings, or other communication channels, yet these mechanisms have limited value if employees do not feel able to use them, if leaders are unreceptive to unwelcome information, or if reported concerns disappear without visible follow-up. Research has linked supportive organisational and leader–employee relationships with greater safety communication and safety commitment, illustrating that communication is embedded within broader relational and organisational conditions (Hofmann & Morgeson, 1999). Similarly, systematic-review evidence highlights open and two-way communication, feedback mechanisms, mutual trust, and a supportive communication climate as important features of effective safety communication (Zara et al., 2023). Within the present framework, communication therefore functions as a connecting

mechanism among the other safety-culture determinants: psychological safety enables employees to contribute information, leadership and accountability influence how that information is received and addressed, competency affects employees' ability to recognise and communicate relevant safety issues, and organisational learning determines whether communicated experience is translated into improvement. Effective communication thus contributes to integration by enabling safety-related information and feedback to circulate through the organisational system rather than remaining isolated within individuals, teams, or initiatives.

Section 5.6 — Organisational Learning

Organisational learning represents the adaptive dimension of safety culture through which experience is converted into improved understanding, practices, and organisational conditions. Safety-relevant experience may arise from incidents, near misses, observations, audits, employee concerns, operational successes, and everyday work; however, the availability of such information does not in itself constitute organisational learning. Research on learning from safety incidents demonstrates that learning requires a process extending from reporting and analysis through the development and implementation of appropriate measures to evaluation of whether those measures have actually reduced the potential for recurrence (Drupsteen et al., 2013). Importantly, organisations may possess substantial learning potential while failing to use it effectively, with weaknesses occurring at different stages of the learning process. Within the present framework, the primary function of organisational learning is therefore to convert safety-relevant experience and information into sustained organisational improvement by identifying lessons, translating them into appropriate action, disseminating relevant knowledge, and evaluating whether the resulting changes are effective.

Organisational learning is particularly dependent on the functioning of the other safety-culture determinants because an organisation cannot learn effectively from information that is not recognised, communicated, or constructively examined. Psychological safety influences whether employees are willing to disclose errors, uncertainties, and concerns; communication determines whether such information reaches relevant individuals and functions; leadership shapes the priority, attention, and resources given to learning; fair accountability influences whether adverse events are examined openly rather than concealed through fear of blame; and competency affects employees' ability both to recognise safety-relevant information and to apply lessons in practice. Reviews of safety-learning systems similarly identify leadership and organisational support, training, a just and safe culture, reporting processes, feedback, implementation, and dissemination of learning as interconnected conditions influencing whether organisations successfully learn from safety events (Mahmoud et al., 2023; Serou et al., 2021). Organisational learning therefore does not operate as an isolated final stage following an incident; it functions as part of a continuous organisational feedback process in which experience generates information, information generates learning, learning informs change, and those changes subsequently shape employees' future safety experiences.

Section 6 — The Integrated Safety-Culture Development Framework

The preceding analysis suggests that sustainable safety-culture development should be conceptualised as an integrated and dynamic process rather than as the cumulative presence of separate safety initiatives. The proposed framework positions leadership, competency, accountability, psychological safety, communication, and organisational learning as interdependent determinants that collectively shape the organisational conditions employees repeatedly experience (Khan, 2026). Their cultural influence does

not arise simply from the strength of each determinant considered independently, but from the extent to which their combined operation provides coherent, continuous, and mutually reinforcing signals about what safety means, what behaviours are expected, and what actions are genuinely supported within the organisation. This system-level perspective is consistent with evidence that safety culture develops gradually through multilevel organisational influences, behavioural enactment, feedback, employee learning, and consistency over time (Bisbey et al., 2021), as well as safety-climate research showing that employees interpret patterns, relative priorities, and consistencies across organisational policies, procedures, practices, and managerial actions rather than responding only to isolated organisational signals (Zohar, 2010). The framework therefore proposes that integration influences safety culture primarily through the cumulative organisational experience generated by the combined operation of the six determinants.

Employee experience provides the interpretive mechanism through which the combined operation of safety-culture determinants acquires cultural meaning. Employees encounter leadership decisions, accountability responses, opportunities to speak up, competency support, communication practices, and organisational reactions to reported problems as recurring features of everyday work rather than merely as formal components of a management system. Through these encounters, they form interpretations about the relative priority of safety, the behaviours that are genuinely supported, and the likely consequences of acting in particular ways. Safety-climate theory similarly suggests that employees make sense of the organisational environment by interpreting relationships and relative priorities among policies, procedures, and practices, together with the degree of alignment between formally espoused priorities and those enacted in managerial behaviour (Zohar, 2010). Within the proposed framework, the cultural significance of integration therefore lies in its capacity to reduce contradiction among these recurring experiences: when the six determinants communicate compatible expectations and consequences, employees are more likely to encounter a coherent pattern from which the practical meaning of safety can be inferred. Conversely, persistent misalignment can generate competing interpretations even when individual safety initiatives are technically well designed.

Employee interpretations acquire cultural significance when they influence behaviour and are subsequently reinforced or revised through organisational consequences. Employees do not merely infer what the organisation values; they also experience what happens when they act in accordance with, or contrary to, those inferred expectations. Bisbey et al. (2021) identify behavioural consequences as an important feedback mechanism through which safety-related values, assumptions, and norms may be reinforced or revised, highlighting employee learning from behavioural outcomes as a central process in safety-culture development. Within the proposed framework, this feedback process connects integrated organisational conditions with behavioural reinforcement. When speaking up, stopping unsafe work, following procedures, reporting mistakes, or seeking assistance is repeatedly met with supportive and consistent organisational responses, employees receive experiential confirmation that these behaviours are genuinely expected and valued. Conversely, when formally encouraged safety behaviours produce negative, inconsistent, or indifferent organisational responses, employees may revise their expectations and adapt their behaviour accordingly. Integration therefore contributes to cultural development not only by communicating coherent safety expectations, but also by ensuring that the organisational consequences employees experience reinforce rather than contradict those expectations.

Behavioural reinforcement becomes culturally significant when the expectations generated through repeated organisational experience extend beyond individual employees and become socially shared.

Safety culture is fundamentally collective: it involves patterns of values, assumptions, expectations, and norms that develop within groups and influence how members understand and respond to safety-related situations (Bisbey et al., 2021; Guldenmund, 2000). As employees repeatedly observe how colleagues, supervisors, and organisational systems respond to safety-related behaviour, these experiences provide social information about what is considered normal, acceptable, expected, and valued. Through continued interaction and shared experience, individually interpreted organisational signals can therefore contribute to increasingly common expectations about how safety is practised within the organisation. Within the proposed framework, this represents the transition from behavioural reinforcement to cultural embedding: coherent and repeated organisational experiences reinforce particular behavioural expectations, social interaction contributes to their diffusion and collective interpretation, and sufficient consistency over time allows these expectations to become progressively embedded as shared safety norms. Safety culture can thus be understood not simply as the direct outcome of safety initiatives, but as an emergent collective pattern shaped by what organisational members repeatedly experience, learn, enact, observe, and reinforce together.

The proposed framework is therefore cyclical rather than purely linear. Shared safety norms and established patterns of behaviour do not represent an endpoint in cultural development; they become part of the organisational environment that shapes subsequent decisions, interactions, and employee experiences. At the same time, new operational experience—including incidents, near misses, employee concerns, successful adaptations, and changes in work conditions—provides information that can challenge or reinforce existing assumptions and practices. Bisbey et al. (2021) similarly conceptualise behavioural consequences as feedback capable of reinforcing or revising safety-related values, assumptions, and norms, emphasising the dynamic nature of safety-culture development. Within the proposed framework, organisational learning provides a particularly important feedback pathway by converting relevant experience into changes in leadership practice, competency development, accountability arrangements, communication processes, psychological-safety conditions, and other features of the organisational system. These changes then generate new employee experiences and behavioural consequences, creating further opportunities for interpretation, reinforcement, and learning. Safety-culture development is therefore conceptualised as a continuing cycle in which organisational conditions shape experience and behaviour, while experience and behavioural outcomes feed back into the organisational conditions from which future culture develops.

The proposed relationships and feedback processes are synthesised in Figure 1.

Figure 1
Proposed Integrated Framework for Safety-Culture Development



Note. The framework conceptualises leadership, competency, accountability, psychological safety, communication, and organisational learning as interdependent determinants whose concurrent, coherent, continuous, and mutually reinforcing operation shapes cumulative employee experience. Through interpretation, behavioural reinforcement, and the progressive development of shared expectations and norms, these experiences contribute to safety-culture development. Feedback and organisational learning allow experience and outcomes to inform subsequent organisational conditions, making cultural development a continuing rather than purely linear process.

Section 6.1 — Conceptual Propositions

The integrated framework developed above gives rise to a set of conceptual propositions concerning the process through which organisational integration may contribute to safety-culture development. These propositions do not assume that any single determinant independently produces cultural change; rather, they reflect the proposed relationships among determinant integration, cumulative employee experience, interpretation, behavioural reinforcement, collective norm formation, and organisational learning. They are intended to make the framework's central theoretical claims explicit and to provide a basis for future empirical examination.

Proposition 1 — Integration and Employee Experience

The greater the concurrency, coherence, continuity, and mutual reinforcement among leadership, competency, accountability, psychological safety, communication, and organisational learning, the more coherent employees' cumulative experience of organisational safety priorities is likely to become.

Proposition 2 — Experience and Interpretation

More coherent and consistent organisational safety experiences are more likely to produce shared inter-

retations regarding the priority of safety and the safety-related behaviours genuinely expected and supported by the organisation.

Proposition 3 — Interpretation and Behavioural Reinforcement

Safety-related behaviours are more likely to be sustained when the organisational consequences employees experience are consistent with the safety expectations communicated through formal and informal organisational signals.

Proposition 4 — From Reinforcement to Shared Norms

Repeated and socially shared experiences of consistent safety-related expectations and consequences are more likely to contribute to the development and reinforcement of collective safety norms over time.

Proposition 5 — Organisational Learning and the Feedback Loop

Safety-culture development is more likely to be sustained when organisational learning converts operational experience and behavioural feedback into continuing adjustments across the interdependent safety-culture determinants.

Section 7 — Humanistic Foundation

The effectiveness of an integrated safety-culture system depends not only on the design and alignment of its organisational determinants, but also on the manner in which those determinants are enacted through everyday human relationships. Policies, competency systems, accountability arrangements, communication mechanisms, and learning processes are ultimately interpreted and implemented through interactions among leaders, supervisors, and employees. The present framework therefore proposes a humanistic foundation for authentic implementation, drawing conceptually on Rogers' (1957) relational conditions of congruence, empathic understanding, and unconditional positive regard. These conditions were developed within person-centred psychotherapy and are not proposed here as additional determinants of safety culture. Rather, their underlying relational principles provide a lens for considering the quality with which organisational safety systems are enacted: congruence emphasises genuineness between expressed values and actual conduct; empathy emphasises genuine efforts to understand employees' experiences and perspectives; and positive regard emphasises respect for the person even when behaviour requires questioning, correction, or appropriate accountability. From this perspective, integration concerns not only whether safety-culture determinants are structurally connected, but also whether employees experience their implementation as genuine, empathic, and respectful.

Authentic implementation requires more than visible compliance with the formal requirements of a safety system. Leaders and supervisors may communicate appropriate safety messages, attend required training, encourage reporting, and formally endorse learning-oriented practices, yet employees also observe whether these expressed commitments remain evident when operational pressures, mistakes, competing priorities, or difficult decisions arise. This distinction is closely related to behavioural integrity, defined as the perceived alignment between an actor's words and deeds (Simons, 2002), and is conceptually compatible with Rogers' (1957) principle of congruence. In the present framework, congruence does not require leaders to display every private feeling or to behave without professional restraint; rather, it highlights genuineness in the relationship between the safety values they communicate and the values evident in their conduct. When leaders consistently enact the priorities they express, formal safety messages are more likely to be experienced as credible. Conversely, repeated discrepancies between stated safety values and observable decisions may weaken employees' confidence

in those messages and create competing interpretations of what the organisation genuinely prioritises. Authentic implementation therefore requires those responsible for the safety system not merely to perform the language of safety, but to demonstrate through recurring decisions and behaviour that the principles they communicate are genuinely reflected in organisational practice.

Empathy adds a second relational requirement to authentic implementation by emphasising the need to understand how organisational safety arrangements are experienced from the employee's perspective. Rogers (1957) described empathic understanding in terms of perceiving another person's internal frame of reference, and this principle can be applied conceptually to the way leaders and supervisors engage with employees' safety concerns, mistakes, difficulties, and operational pressures. In organisational safety, empathy does not require agreement with every employee judgement, acceptance of unsafe behaviour, or relaxation of legitimate standards. Rather, it requires a genuine effort to understand the circumstances, perceptions, constraints, and reasoning surrounding an employee's behaviour before conclusions and responses are formed. This orientation is particularly relevant to an integrated safety-culture system because information about workload, procedural difficulties, competing demands, competency gaps, communication failures, and other operational conditions often resides in employees' experience of everyday work. When leaders approach such experience with genuine curiosity and understanding, employee voice can become a source of information for fair accountability, competency development, and organisational learning rather than being treated merely as resistance or non-compliance. Empathy may therefore support authentic implementation by helping the organisation understand the human and operational context within which safety behaviour occurs while preserving appropriate expectations for responsible performance.

Unconditional positive regard provides a third humanistic principle for authentic implementation by distinguishing respect for the person from approval of particular behaviour. In Rogers' (1957) formulation, positive regard involves valuing and accepting the individual without making that regard conditional upon particular experiences or expressions. Applied conceptually to organisational safety, this principle suggests that an employee's fundamental dignity and worth should not depend on flawless performance or the absence of mistakes. This does not prevent the organisation from investigating incidents, correcting unsafe behaviour, addressing violations, or applying proportionate disciplinary consequences where these are justified. Rather, it requires a distinction between holding a person accountable for behaviour and devaluing the person because of that behaviour. Humiliation, personal denigration, contempt, or labelling an employee as inherently incapable may therefore be inconsistent with a humanistic approach even when legitimate corrective action is required. Within the proposed framework, maintaining respect for the individual while addressing behaviour supports an environment in which accountability can remain meaningful without unnecessarily undermining psychological safety, employee voice, and opportunities for organisational learning.

Taken together, congruence, empathy, and unconditional positive regard provide a humanistic foundation for the authentic enactment of the integrated safety-culture system proposed in this article. Their contribution lies not in replacing formal safety structures or adding a seventh determinant, but in influencing the relational quality through which the six determinants are implemented and experienced. Leadership may be formally established, competency programmes technically sound, accountability procedures clearly defined, communication channels available, initiatives to strengthen psychological safety introduced, and learning systems operational; yet their intended cultural influence may be weakened if employees repeatedly experience their implementation as inconsistent, dismissive,

disrespectful, or merely performative. Conversely, implementation characterised by genuine alignment between expressed values and conduct, serious efforts to understand employees' perspectives, and respect for individuals while maintaining appropriate behavioural standards can strengthen the credibility and relational coherence of the wider system. The framework therefore proposes that sustainable safety-culture development depends not only on the concurrent, coherent, continuous, and mutually reinforcing operation of organisational determinants, but also on the authenticity with which those determinants are enacted through everyday human relationships.

Section 8 — Discussion and Theoretical Implications

The principal theoretical contribution of the proposed framework is to shift attention from the presence or effectiveness of individual safety-culture determinants towards the developmental consequences of their combined operation. Existing research has established the importance of numerous organisational and behavioural influences on safety and has increasingly recognised safety culture as a dynamic, multilevel phenomenon that develops through interaction, behavioural enactment, feedback, learning, and consistency over time (Bisbey et al., 2021). Safety-climate research has likewise demonstrated that employees interpret patterns and relative priorities across organisational policies, procedures, practices, and managerial actions (Zohar, 2010). Building on these foundations, the present framework proposes that an important mechanism of cultural development lies in the degree to which leadership, competency, accountability, psychological safety, communication, and organisational learning generate a concurrent, coherent, continuous, and mutually reinforcing organisational experience. The theoretical emphasis therefore moves from asking whether desirable safety determinants are individually present to examining how their interaction is experienced by employees and how that experience is progressively translated into behavioural reinforcement, shared expectations, and collective safety norms.

A second theoretical contribution concerns the conceptualisation of fragmentation. Fragmentation should not be inferred simply from the existence of separate safety programmes, different implementation phases, or specialised organisational functions. Such differentiation may be necessary and can contribute positively to safety improvement. The more consequential form of fragmentation proposed here is developmental incoherence: a condition in which safety-culture determinants and initiatives fail to provide sufficiently aligned, sustained, connected, and mutually reinforcing experiences from which consistent safety expectations can develop. This distinction extends the discussion beyond programme structure towards the way employees experience the combined organisational system. A leadership initiative, competency programme, reporting mechanism, or learning process may therefore be effective within its immediate domain while contributing only partially to broader cultural development if surrounding organisational conditions communicate incompatible expectations or fail to sustain its effects. The framework consequently treats fragmentation and integration not as properties of whether initiatives are administratively separate, but as properties of the relationships among the organisational experiences those initiatives generate over time.

A third theoretical contribution is the positioning of cumulative employee experience as a bridging mechanism between organisational conditions and the development of collective safety culture. Organisational policies, systems, leadership practices, and safety initiatives do not become culture simply because they exist; their cultural significance emerges through the ways in which employees repeatedly encounter, interpret, and respond to them in everyday work. Safety-climate theory provides an important foundation for this argument by showing that employees develop perceptions of

organisational safety priorities from patterns across policies, procedures, practices, and managerial behaviour (Zohar, 2010). Safety-culture development research further suggests that enacted behaviours and their consequences provide feedback through which employees learn and through which safety-related values, assumptions, and norms may be reinforced or revised over time (Bisbey et al., 2021). The present framework connects these processes by proposing a developmental pathway in which integrated organisational conditions generate cumulative employee experiences; these experiences inform interpretations of what the organisation genuinely values and expects; behavioural consequences reinforce or revise those interpretations; and repeated, socially shared experiences contribute progressively to collective safety expectations and norms. Employee experience thus provides a conceptual bridge through which organisational arrangements acquire behavioural and, ultimately, cultural significance.

A fourth theoretical contribution is the incorporation of a humanistic foundation for authentic implementation. Organisational safety frameworks commonly emphasise what should be established through leadership, systems, competencies, communication, accountability, and learning; the present framework additionally draws attention to the relational quality through which these arrangements are enacted and experienced. Drawing conceptually on Rogers' (1957) principles of congruence, empathic understanding, and unconditional positive regard, the framework proposes that technically appropriate safety arrangements may acquire different cultural meanings depending on whether employees experience their implementation as genuine, empathic, and respectful. This humanistic perspective complements, rather than replaces, established organisational mechanisms. Congruence draws attention to alignment between expressed safety values and enacted behaviour; empathy highlights the importance of understanding employees' experiences and operational perspectives; and positive regard distinguishes respect for the person from approval of behaviour, thereby allowing human dignity and appropriate accountability to coexist. Authentic implementation is therefore conceptualised as a relational foundation that can influence how the integrated organisational system is interpreted and experienced, rather than as an additional safety-culture determinant in its own right.

A fifth theoretical contribution lies in conceptualising safety-culture development as a continuing and recursive process rather than as movement towards a fixed cultural endpoint. Once shared safety expectations and norms become established, they become part of the organisational context within which subsequent behaviour, decisions, and experiences occur. At the same time, new operational experience and the consequences of enacted behaviour can reinforce existing cultural patterns or provide information that challenges them. This dynamic view is consistent with Bisbey et al. (2021), who conceptualise behavioural consequences as feedback through which safety-related values, assumptions, and norms may be reinforced or revised over time. The present framework extends this developmental logic by positioning organisational learning as a feedback mechanism through which experience can inform continuing adjustments across the interdependent determinants, thereby generating new organisational conditions and subsequent employee experiences. Safety culture is therefore conceptualised not as a final organisational state achieved through successful intervention, but as an evolving collective pattern that is continually reproduced, reinforced, questioned, and potentially modified through the interaction of organisational conditions, employee experience, behaviour, and learning.

Section 9 — Practical Implications

The proposed framework has practical implications for organisations seeking to strengthen safety culture through existing or planned improvement activities. Its central implication is that organisations should move beyond managing leadership, competency, accountability, psychological safety, communication, and organisational learning as independent improvement agendas and consider how these determinants operate together in employees' everyday experience. This does not require all six determinants to be developed through major interventions at the same time. Rather, organisations can adopt a phased approach in which priorities are identified according to organisational needs, while ensuring that existing strengths are maintained and progressively connected with newly developed capabilities. Implementation should therefore focus on concurrency, coherence, continuity, and mutual reinforcement: relevant determinants should remain sufficiently active together, communicate compatible expectations, be sustained over time, and support one another in practice. From this perspective, the practical question is not simply whether an organisation has leadership training, competency programmes, reporting systems, accountability procedures, communication mechanisms, or learning processes, but whether their combined operation creates a consistent organisational experience that employees can recognise in everyday work.

A practical starting point is therefore to assess not only the strength of individual safety-culture determinants but also the quality of the relationships among them. Conventional assessments may identify whether leadership commitment, competency arrangements, reporting mechanisms, communication processes, accountability practices, or learning systems are present or functioning; an integrated assessment should additionally examine whether these elements generate compatible experiences for employees. Organisations can therefore look for points of alignment and contradiction across the system—for example, whether leaders encourage reporting while accountability practices respond fairly to reported errors, whether employees trained to identify hazards also feel psychologically safe to challenge unsafe decisions, whether concerns raised through communication channels receive visible responses, and whether lessons identified through investigations are translated into competency development or changes in practice. Such interface-focused assessment can help organisations identify forms of fragmentation that may remain hidden when determinants are evaluated independently. Practical improvement can then be directed not only towards strengthening weak determinants, but also towards repairing the organisational connections required for those determinants to reinforce one another.

Following assessment, improvement can be planned as a phased but cumulative process rather than as a simultaneous attempt to strengthen every determinant. Organisations may prioritise particular areas according to identified weaknesses, operational risk, workforce experience, or existing organisational capability; however, each new intervention should be designed with explicit consideration of how it will interact with the determinants already in place. For example, strengthening hazard-recognition competency should be accompanied by consideration of whether employees have appropriate channels and sufficient psychological safety to communicate the hazards they identify, whether leaders will respond consistently to those concerns, and whether resulting information can enter organisational learning processes. Similarly, introducing a new reporting initiative should include consideration of accountability responses, feedback to reporters, leadership behaviour, and mechanisms for converting reported information into improvement. Phased implementation can therefore remain integrated when earlier capabilities are sustained, new initiatives are deliberately connected to them, and the combined

system becomes progressively more coherent rather than repeatedly replacing one organisational priority with another.

Evaluation should likewise extend beyond measuring the completion or immediate outcomes of individual safety initiatives. Indicators such as training attendance, competency assessments, numbers of reported concerns, leadership activities, communication meetings, corrective-action closure, or investigation completion can provide useful information about particular components of the safety system, but they do not necessarily indicate whether employees are experiencing those components as an integrated whole. Organisations should therefore complement determinant-specific measures with assessment of the interfaces among determinants and of employees' cumulative organisational experience. This may include examining whether safety messages are consistent with managerial decisions, whether reporting is followed by fair responses and visible feedback, whether identified lessons result in changes to competency or work practices, and whether employees experience sufficient continuity between stated safety priorities and everyday organisational behaviour. Evaluation should consequently address both component effectiveness and system coherence, enabling organisations to identify situations in which individual initiatives appear successful while contradictory experiences elsewhere in the system may weaken their broader cultural influence.

Responsibility for integrated safety-culture development should not be confined to the HSE function. HSE professionals can provide expertise, coordination, facilitation, monitoring, and technical support, but employees experience organisational safety through decisions and interactions occurring across line management, supervision, operational functions, human-resource processes, training systems, and senior leadership. Leadership research demonstrates that managerial and supervisory behaviour is meaningfully associated with employee safety outcomes, reinforcing the importance of leadership at multiple organisational levels (Clarke, 2013; Lyubykh et al., 2022). Practical implementation should therefore establish shared ownership of the framework across relevant organisational functions while maintaining clear responsibilities for particular processes. Senior leaders need to establish and demonstrate organisational priorities; line managers and supervisors translate those priorities into everyday operational decisions; competency and human-resource processes support capability development; HSE functions provide specialist support and system oversight; and employees contribute operational knowledge, concerns, and learning from work. Integration is strengthened when these contributions operate as parts of a connected organisational system rather than as activities owned independently by separate functions.

Finally, organisations should consider the relational quality with which safety systems are implemented. Developing managers and supervisors in safety procedures or leadership techniques may be insufficient if the behaviours displayed in everyday interactions contradict the principles those systems are intended to promote. The humanistic foundation proposed in this framework suggests that implementation should encourage congruence between expressed safety values and managerial conduct, empathic efforts to understand employees' operational experiences and concerns, and respect for the individual while maintaining appropriate behavioural standards and accountability (Rogers, 1957). In practical terms, leaders and supervisors should be able to listen without premature judgement, explore the circumstances surrounding errors or concerns, respond to employee voice constructively, communicate difficult decisions respectfully, and distinguish correction of behaviour from devaluation of the person. These relational behaviours should not be treated as substitutes for technical competence, clear standards, or legitimate accountability; rather, they influence how those organisational arrangements are experienced

by employees. Authentic implementation therefore requires organisations to develop not only the formal architecture of safety management, but also the interpersonal capability of those responsible for translating that architecture into everyday organisational experience.

Section 10 — Future Research Directions

The proposed framework is conceptual and therefore requires empirical examination before its developmental relationships can be treated as established. Future research should test whether the degree of integration among leadership, competency, accountability, psychological safety, communication, and organisational learning explains meaningful variation in employees' safety-related experiences and broader cultural outcomes beyond the effects of individual determinants considered separately. In particular, studies could examine whether concurrency, coherence, continuity, and mutual reinforcement among the six determinants are empirically distinguishable features of integration and whether their combined presence predicts more coherent employee interpretations of organisational safety priorities. Research should also investigate the proposed developmental pathway linking integrated organisational conditions with cumulative employee experience, interpretation of safety expectations, behavioural reinforcement, shared norms, and safety culture. Such work would help determine whether cumulative employee experience functions as the bridging mechanism proposed in this article and whether the relationships represented in the framework operate directly, sequentially, reciprocally, or through additional mediating and moderating processes.

The temporal and multilevel character of the proposed framework also has implications for research design. Because safety culture is conceptualised here as developing through repeated organisational experience, behavioural reinforcement, social interaction, and learning over time, longitudinal research would be particularly valuable for examining the proposed developmental sequence. Repeated measurements could investigate whether changes in determinant integration precede changes in employee experience, behavioural expectations, and shared safety norms, while multilevel designs could examine how individual experiences become increasingly shared within teams and organisational units. This is consistent with the broader recognition that safety culture is a multilevel and dynamic phenomenon whose development involves interaction, behavioural enactment, feedback, learning, and consistency over time (Bisbey et al., 2021). Mixed-method approaches may provide additional value by combining quantitative assessment of determinant relationships and cultural outcomes with qualitative investigation of how employees interpret consistency, contradiction, authenticity, and change in everyday organisational practice. Future studies should therefore move beyond reliance on single-time-point perceptions where possible and examine the framework as a developmental process unfolding across time and organisational levels.

A further research priority concerns the proposed humanistic foundation of authentic implementation. The present framework conceptually extends Rogers' (1957) principles of congruence, empathic understanding, and unconditional positive regard beyond their original therapeutic context to consider the relational quality through which organisational safety arrangements are enacted. Future research should therefore examine whether employees' experiences of managerial genuineness, empathic understanding, and respect for personal dignity are associated with the credibility and effectiveness of safety-culture initiatives. Particular attention could be given to whether these relational qualities influence psychological safety, employee voice, trust in accountability processes, willingness to disclose mistakes, and perceptions of alignment between formally expressed safety values and everyday

managerial behaviour. Research should also examine whether authentic relational enactment strengthens the relationship between determinant integration and cumulative employee experience, thereby functioning as a facilitating or moderating condition rather than as an additional safety-culture determinant. Such investigation would help determine whether the humanistic principles incorporated into the framework provide explanatory value for safety-culture development beyond established organisational and behavioural mechanisms.

Future research should also examine the contextual generalisability and boundary conditions of the proposed framework. Although the six determinants are conceptualised as interdependent components of safety-culture development, their relative salience, patterns of interaction, and modes of implementation may vary across industries, organisational structures, workforce characteristics, regulatory environments, and national or cultural contexts. Safety-culture research has recognised the importance of organisational and contextual influences and cautioned against assuming that safety-related processes operate uniformly across settings (Bisbey et al., 2021). Comparative studies could therefore investigate whether the proposed integration mechanisms remain consistent across high- and lower-risk industries, large and small organisations, different occupational groups, and different cultural or regulatory environments. Research should also examine whether particular determinants become more influential under specific conditions and whether effective integration requires contextual adaptation while preserving the broader principles of concurrency, coherence, continuity, and mutual reinforcement. Such investigation would help establish the boundary conditions of the framework and distinguish its potentially generalisable developmental mechanisms from those aspects that require adaptation to particular organisational contexts.

Section 11 — Conclusion

This article has proposed an integrated framework for understanding safety-culture development as a dynamic organisational process rather than as the outcome of isolated safety initiatives or individual determinants. The framework brings together leadership, competency, accountability, psychological safety, communication, and organisational learning and argues that their cultural influence depends not only on their individual strength but also on the concurrency, coherence, continuity, and mutual reinforcement of their operation. Through the cumulative experiences generated by these organisational conditions, employees interpret what the organisation genuinely prioritises, learn which safety-related behaviours are supported in practice, and develop expectations that may progressively become socially shared and embedded as safety norms. Safety culture is therefore conceptualised as an evolving collective pattern emerging through the continuing interaction of organisational conditions, employee experience, behavioural reinforcement, social interpretation, and organisational learning.

The framework further proposes that structural integration alone may be insufficient if safety arrangements are not enacted authentically through everyday human relationships. Drawing conceptually on Rogers' (1957) humanistic principles, congruence, empathic understanding, and unconditional positive regard are positioned as relational qualities that can inform how integrated safety systems are implemented while preserving respect for the person and without replacing legitimate standards, responsibility, or accountability. The resulting perspective combines organisational integration with humanistic authenticity: organisations need safety determinants that operate together coherently and continuously, but they also need those responsible for implementation to enact the values embedded within those systems genuinely, respectfully, and with an effort to understand employees'

experiences. As a conceptual framework, these proposed relationships require empirical examination across organisational and industry contexts. Nevertheless, the framework offers a basis for shifting safety-culture development from a collection of separate improvement activities towards a connected, cumulative, learning-oriented, and authentically enacted organisational process.

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