



## **MANAGING EXPECTANCY VIOLATIONS IN PILOT–AIR TRAFFIC CONTROLLER COMMUNICATION: A THEORY-DRIVEN ANALYSIS OF SAFETY, TRUST, AND WORKPLACE WELLBEING**

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### **Abstract**

Communication between pilots and air traffic controllers (ATCs) operates within one of the most highly standardized and safety-critical environments in contemporary organizations. While prior research has predominantly examined communication failures through technical, linguistic, or procedural lenses, limited attention has been given to how communicative expectations are constructed, violated, and evaluated during routine and non-routine aviation operations. Grounded in Expectancy Violations Theory (EVT), this study examines how pilots and ATCs interpret deviations from expected communication behaviors and how these interpretations shape safety outcomes and workplace wellbeing. Using a qualitative research design, the study draws on semi-structured interviews and focus group discussions with experienced pilots, air traffic controllers, and aviation subject-matter experts in Indonesia. The findings indicate that standardized phraseology, readback–hearback loops, and role asymmetry function as institutionalized expectancy structures guiding operational interaction. However, operational pressures such as traffic density, weather volatility, linguistic diversity, fatigue, and emotional regulation demands frequently generate expectancy violations. These deviations are not inherently detrimental; rather, their valence is shaped by perceived communicator competence, trust, and situational legitimacy. The study extends EVT into high-reliability organizational contexts and contributes to communication scholarship by demonstrating how expectancy management operates as a communicative mechanism linking operational safety and psychological wellbeing in aviation work settings.

**Keywords:** Expectancy Violations Theory; pilot–ATC communication; aviation safety; organizational communication; workplace wellbeing.



## INTRODUCTION

Communication between pilots and air traffic controllers (ATCs) is among the most safety-critical interactional practices in contemporary organizations. Aviation is routinely characterized as a high-reliability socio-technical system in which coordination depends on rapid, unambiguous, and mutually verified exchanges often under time pressure, uncertainty, and asymmetric authority (Cushing, 1994; Molesworth & Estival, 2015; Prinzo & Britton, 1993). Despite advances in automation and surveillance infrastructure, accidents and near misses continue to show that communication breakdowns remain a persistent contributor to operational risk, particularly when cognitive load, fatigue, and contextual volatility co-occur (FAA, 2018). Communications ATCs, communication is not merely a conduit of information; it is the mechanism through which shared situational understanding is produced, repaired, and stabilized in real time.

In addition to operational complexity, the global aviation system has become increasingly interconnected, involving multinational crews, multilingual communication environments, and rapidly growing air traffic volumes. International aviation safety reports consistently identify communication-related misunderstandings as contributing factors in operational incidents, particularly in contexts characterized by linguistic diversity and high workload. These conditions highlight the importance of examining not only the technical accuracy of communication but also the interpretive processes through which pilots and air traffic controllers make sense of communicative deviations during operational interaction.

The pilot–ATC literature has matured across several trajectories. First, aviation psychology and human factors research has been effective in identifying correlates of miscommunication accent variation, non-native proficiency, workload, fatigue, and frequency congestion while demonstrating that “communication error” is often a multi-causal outcome rather than a single point failure (Cushing, 1994; Molesworth & Estival, 2015; Prinzo & Britton, 1993). Second, discourse-analytic and interactional approaches have clarified how standardized radiotelephony phraseology, constrained turn-taking, and readback–hearback loops function as risk controls that reduce ambiguity and improve coordination in distributed operations (Nevile, 2006). Third, organizational communication scholarship has increasingly foregrounded internal communication quality, trust, and communicative climate as resources for performance and resilience under strain, including in crisis conditions (Heide & Simonsson, 2020; Men & Verčič, 2021). This broader stream is especially relevant because it treats communication as constitutive of coordination and psychological safety rather than as a peripheral “soft” factor.

Journals consistently published scholarships arguing that communication theory is necessary to explain organizational performance under pressure. For instance, crisis communication work has modeled how communicative strategies shape organizational capability and relational outcomes moving beyond descriptive accounts of what organizations “did” toward explanations of why certain communication patterns enhance crisis management (Kim & Krishna, 2017). Similarly, research on government public relations during crises has theorized publics’ communicative action by linking cognitive and affective variables to communication behaviors, reinforcing that communication outcomes hinge on interpretive and relational mechanisms, not only procedural inputs (Chon, 2019). More recently, internal communication scholarship has



demonstrated how dialogic competencies (e.g., mutuality, openness) shape relational outcomes again highlighting that communication processes generate trust and relationship quality as consequential outcomes (Kim, 2023).

Despite these strengths, pilot–ATC communication research remains theoretically uneven in one crucial respect: the dominant paradigms still conceptualize deviations from standardized communication primarily as “errors” to be reduced, rather than as interactional events that must be *interpreted and evaluated* under constraints. This technical-normative orientation leaves under-specified the interpretive question that matters most in operational reality: when deviations inevitably occur, what determines whether they are absorbed as adaptive coordination or amplified into operational risk and psychosocial strain?

This gap is especially consequential because aviation communication is arguably one of the most expectancy-saturated environments in organizational life. Our qualitative evidence from Indonesia shows that pilots and ATCs treat shared meaning as the safety-critical product of highly standardized protocols phraseology, layered verification, and role clarity precisely designed to secure mutual understanding. At the same time, the same evidence demonstrates frequent operational challenges: traffic density, fast-changing weather, local linguistic practices, and human limitations (fatigue or boredom) create conditions under which non-standard phrasing, compressed instructions, and tone shifts become likely. Literature has documented many of these conditions, but it still lacks a communication-theoretic framework that explains *how* pilots and ATCs appraise deviations and *why* the same deviation can produce divergent consequences across situations.

Expectancy Violations Theory (EVT) directly addresses this explanatory deficit. EVT posits that communicators hold expectations about appropriate behavior shaped by norms, roles, context, and relationship history; deviations create arousal and demand cognitive appraisal; and the valence of violations depends on perceived communicator “reward value” (credibility, competence, authority), relational history, and situational legitimacy (Burgoon, 1978, 1993; Burgoon & Hale, 1988). In high-stakes aviation talk, this prediction is not an abstract interpersonal claim it maps onto the operational reality that deviations from expected phraseology, timing, or tone are immediately salient and can either trigger rapid repair or destabilize shared understanding.

Applying EVT to pilot–ATC exchanges advance the state of the art in at least three ways that anticipate common reviewer questions. First, EVT reframes “non-standard communication” from a uniform error category into an evaluative process: a deviation is not inherently negative; it becomes negative or positive through appraisal. Second, EVT predicts variability that error taxonomies cannot explain compressed instructions may be appraised positively as efficient under congestion or negatively as unsafe under cognitive overload, depending on perceived competence and trust. Third, EVT provides a principled bridge to workplace wellbeing by incorporating affective arousal and relational interpretation as central, not peripheral, elements of interaction.

This is consistent with the broader theoretical emphasis on communication as an explanatory mechanism for organizational outcomes, including trust and relational quality (Kim, 2023) and crisis capability (Kim & Krishna, 2017). In other words, EVT is not imported here as a decorative lens; it is mobilized to explain the very phenomenon that descriptive aviation communication research often leaves implicit: the interpretation of deviation under constraint.



Whether workplace wellbeing is tangential? In this study, it is not. Our evidence indicates that negative expectancy violations, ambiguity, perceived inconsistency, or emotionally charged tone, are experienced as stress-amplifying, while well-managed deviations (efficient brevity, calm reassurance, respectful repair) function as psychosocial resources.

This finding aligns with broader organizational communication research showing that communication quality and internal communicative practices shape employee trust, engagement, and relational outcomes (Chmielecki, 2015; Men & Verčič, 2021). It also resonates with internal crisis communication scholarship emphasizing the role of communication in sustaining coworkership and coping during disruptive conditions (Heide & Simonsson, 2020) and with organizational studies demonstrating that communication practices shape employee engagement and advocacy through trust and relationship quality (Bojadjev & Vaneva, 2021; Prasetya & Kartikawangi, 2021). In the Indonesian context, prior work on organizational digital communication similarly emphasizes that communication practices require guidance, norms, and supervisory support to sustain effectiveness and employee experience (Adam & Kartikawangi, 2018; Dahesihsari & Kartikawangi, 2020; Kartikawangi & Dahesihsari, 2020).

Moreover, crisis communication scholarship argues that sustained uncertainty and high stakes elevate the importance of communicative processes for both performance and psychological stability (Coombs, 2021; Kartikawangi, 2024). Aviation is not always “in crisis,” but it is perpetually crisis-adjacent: the system is designed around the assumption that abnormal situations can emerge quickly and must be managed through disciplined coordination. In such systems, the affective load of interaction, especially under expectancy disruption, becomes a core component of workplace wellbeing.

Against this backdrop, this article advances a theory-driven account of pilot–ATC communication as expectancy management under operational pressure. Using qualitative interviews and focus group discussions with experienced pilots, ATCs, and experts, we explain the institutionalized expectancies are formed and stabilized through standardized protocols, operational pressures generate expectancy violations, violations are appraised through perceived competence and trust, and how these appraisals shape both safety-critical coordination and workplace wellbeing. The study contributes to communication scholarship by extending EVT into high-reliability organizational contexts; explaining variability in the consequences of non-standard aviation talk through violation valence and communicator credibility; specifying trust as an expectancy “buffer” linking interaction repair to psychosocial outcomes; and providing an empirically grounded Asian case that emphasis on theory-driven explanation of communication processes shaping relational and organizational outcomes (Chon, 2019; Kim, 2023; Kim & Krishna, 2017).

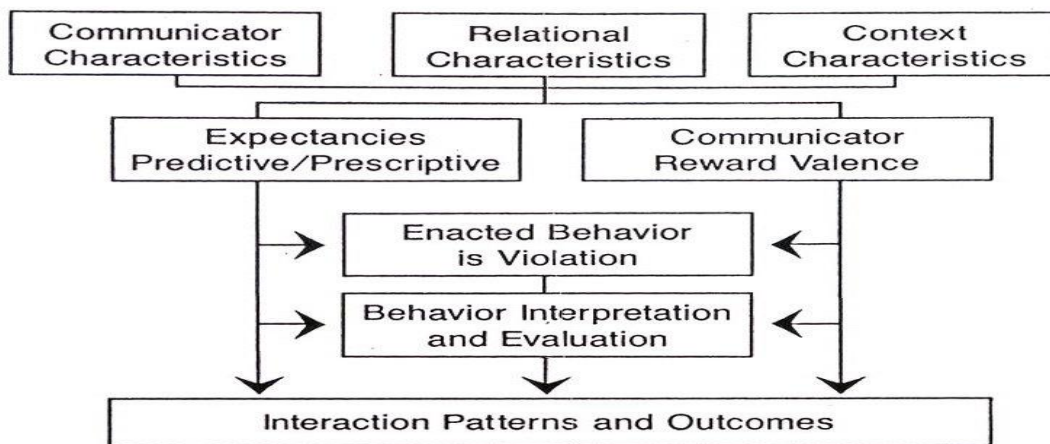
Grounded in Expectancy Violations Theory, this study examines pilot–air traffic controller (ATC) communication as a process of expectancy management in a high-reliability organizational context. The study addresses the following research questions: How are communicative expectations formed in pilot–ATC interaction? How are deviations from expected communication interpreted by pilots and air traffic controllers? How do these interpretations influence safety coordination and workplace wellbeing?



**Theoretical Framework**

This study conceptualizes pilot–air traffic controller (ATC) communication as a complex, meaning-centered interactional process situated within a high-reliability organizational environment. Communication in aviation is not merely a technical conduit for transmitting instructions; it is a socio-cognitive mechanism through which shared understanding, coordination, and psychological stability are continuously constructed and repaired under conditions of uncertainty and high stakes (Cushing, 1994; FAA, 2018; Weick & Sutcliffe, 2015). To explain how communication simultaneously supports operational safety and workplace wellbeing, this study advances an integrative theoretical framework anchored in Expectancy Violations Theory (EVT), complemented by Symbolic Convergence Theory, Communication Accommodation Theory, high-reliability organization theory, and workplace wellbeing perspectives.

Figure 1. Expectancy Violations Theory (EVT)



Source: Burgoon, 1978

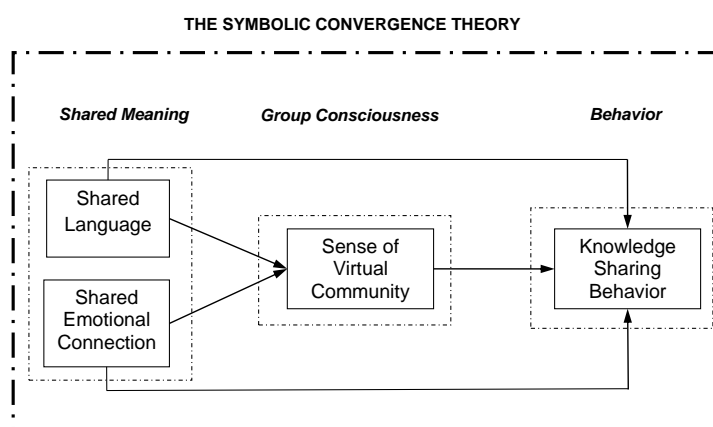
Expectancy Violations Theory provides the primary explanatory logic for understanding pilot–ATC interaction. EVT posits that individuals develop expectations regarding appropriate communicative behavior based on social norms, institutional roles, relational history, and situational context, and that deviations from these expectations generate cognitive arousal and evaluative judgment (Burgoon, 1978, 1993; Burgoon & Hale, 1988). In aviation, expectations are not loosely defined interpersonal assumptions but are heavily institutionalized through international regulations, standardized phraseology, layered verification systems, and professional socialization processes (FAA, 2018; Davison et al., 2003). Pilots and ATCs therefore operate within dense expectancy structures that prescribe not only what should be said, but also how, when, and by whom it should be said. Within such contexts, deviations—such as compressed instructions during traffic congestion, shifts in tone during emergencies, or non-standard phrasing due to linguistic diversity constitute expectancy violations that require immediate interpretation and response.



EVT is particularly powerful in explaining a recurring empirical observation in aviation communication research: the same communicative deviation may be experienced as adaptive and efficiency-enhancing in one situation but as unsafe and destabilizing in another (Molesworth & Estival, 2015; Yang et al., 2023). According to EVT, the valence of an expectancy violation is determined by several interrelated factors, including the perceived competence and credibility of the communicator, the level of relational trust between interactants, and the situational legitimacy of the deviation. In pilot–ATC exchanges, deviations enacted by a trusted and competent ATC under clearly constrained conditions are more likely to be appraised positively, whereas similar deviations enacted under ambiguous or emotionally charged conditions may be interpreted as threatening to safety. EVT thus shifts analytical attention away from categorical notions of “error” toward the interpretive processes through which communication is evaluated in real time.

While EVT explains how deviations are appraised, Symbolic Convergence Theory elucidates how communicative expectations and shared meanings are stabilized in the first place. Symbolic Convergence Theory argues that groups develop shared realities through recurring symbolic forms that generate collective consciousness and coordinated action (Bormann, 1985; Littlejohn et al., 2016). In aviation, standardized phraseology, call-sign conventions, and procedural scripts function as symbolic resources that compress complex operational meanings into predictable communicative forms. These symbolic routines enable pilots and ATCs to coordinate effectively despite physical separation and organizational boundaries, reinforcing a shared safety-oriented worldview. The salience of expectancy violations in aviation can thus be understood as a momentary disruption of symbolic convergence, in which shared meaning is temporarily destabilized and must be repaired through clarification, accommodation, or trust-based acceptance.

Figure 2. Symbolic Convergence Theory



Source: Bormann, 1985

Communication Accommodation Theory further elaborates the micro-level mechanisms through which expectancy violations are managed and repaired during interaction. CAT posits that communicators adjust their speech patterns, tone, pacing, and lexical choices in response to their



interlocutors to reduce social distance, manage relational dynamics, and achieve communicative goals (Gallois & Giles, 2015). In pilot–ATC communication, accommodation manifests in practices such as slowing speech rate for clarity, simplifying language during non-routine situations, modulating tone to convey calm authority, or strategically repeating critical information. These adaptive responses are especially salient in multilingual and high-stress environments, where accommodation serves as a bridge between standardized expectations and situational demands. CAT thus complements EVT by explaining how communicators actively shape the appraisal of expectancy violations, increasing the likelihood that deviations are interpreted as cooperative rather than disruptive (Chatzi et al., 2020; Zeffane, 2010).

The broader organizational context within which these interactional processes unfold is captured by high-reliability organization (HRO) theory. HRO theory emphasizes that organizations operating in high-risk environments rely on redundancy, vigilance, sensitivity to operations, and deference to expertise to prevent catastrophic failure (Weick & Sutcliffe, 2015). Aviation exemplifies these principles through its layered communication protocols, continuous monitoring, and emphasis on procedural compliance. However, HRO theory alone does not explain how individuals interpret deviations from these protocols at the interactional level. By integrating EVT with HRO theory, this framework demonstrates how institutional reliability depends not only on structural safeguards but also on communicators' capacity to interpret, evaluate, and repair deviations without undermining trust or coordination.

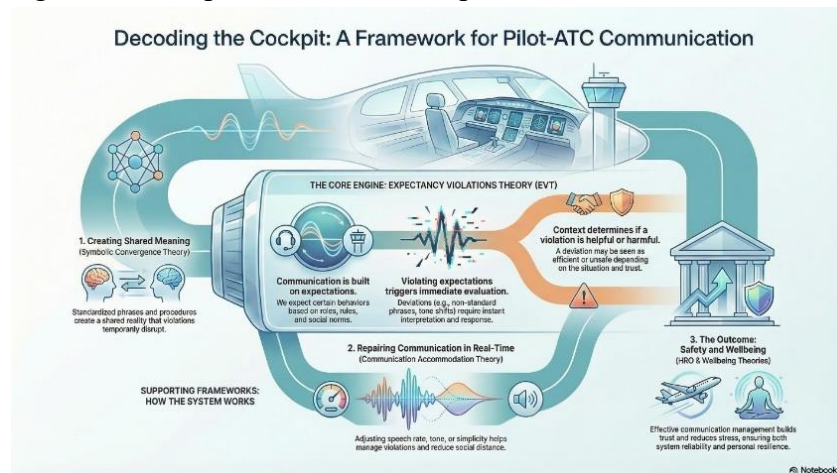
Finally, the framework incorporates workplace wellbeing perspectives to account for the affective and psychological consequences of communication under sustained pressure. Workplace wellbeing is increasingly understood as encompassing not only the absence of distress but also the presence of meaningful engagement, perceived competence, relational trust, and emotional regulation at work (Danna & Griffin, 1999; Deci & Ryan, 2008; Czerw, 2019). In aviation contexts, pilots and ATCs operate under chronic cognitive and emotional demands, often required to maintain composure and clarity even during abnormal or emergency situations (Chill et al., 2020; DeHoff & Cusick, 2018). Communication quality therefore functions as a psychosocial resource: apparent predictability, respectful tone, and effective repair of expectancy violations contribute to reduced stress and professional confidence, whereas poorly managed deviations amplify emotional strain and fatigue.

This integrative framework aligns with organizational communication scholarship emphasizing the centrality of communication in shaping trust, engagement, and resilience, particularly in crisis-adjacent environments (Heide & Simonsson, 2020; Men & Verčič, 2021; Coombs, 2021). It also resonates with Indonesian and Asian communication research highlighting that communication practices require cultural sensitivity, institutional support, and ongoing competence development to sustain effectiveness and wellbeing (Adam & Kartikawangi, 2018; Dahesihsari & Kartikawangi, 2020; Kartikawangi & Dahesihsari, 2020; Kartikawangi, 2024). By positioning expectancy management at the center of pilot–ATC communication, this framework reconceptualizes aviation communication as a dynamic process through which safety and wellbeing are co-produced, rather than as a static system of procedural compliance.



Taken together, the theoretical framework advances communication scholarship by extending Expectancy Violations Theory into high-reliability organizational contexts, demonstrating how symbolic convergence stabilizes shared meaning, how accommodation enables adaptive repair, and how communicative appraisal processes link interactional dynamics to both operational safety and workplace wellbeing.

Figure 3. Integrative conceptual framework of pilot–air traffic controller communication.



The framework positions Expectancy Violations Theory (EVT) as the core explanatory mechanism linking institutionalized communication expectations to adaptive interaction, safety outcomes, and workplace wellbeing, situated within high-reliability organizational contexts and supported by symbolic convergence and communication accommodation processes.

## METHODOLOGY

### Research Design

This study adopts a qualitative, theory-driven research design to examine how pilots and air traffic controllers (ATCs) interpret communicative expectations and respond to expectancy violations in operational aviation contexts. A qualitative approach is appropriate because the study focuses on meaning-making processes, interpretive judgments, and relational dynamics that cannot be adequately captured through quantitative indicators alone (Yin, 2016; Willig, 2013). Expectancy Violations Theory (EVT) serves as the primary analytical framework guiding both data collection and interpretation.

### Participants and Sampling

Participants were recruited through purposive sampling to ensure relevant professional expertise. The sample included commercial pilots and ATCs with a minimum of five years of operational experience, ensuring exposure to a wide range of communication situations, including routine operations and abnormal conditions. In addition, aviation subject-matter experts with professional backgrounds in aviation safety, psychology, communication, and regulation were included to provide broader perspectives on pilot–ATC communication practices.



### **Data Collection**

Data were collected through semi-structured interviews and focus group discussions. Six in-depth interviews were conducted with three pilots (online) and three ATCs (face-to-face). In addition, two focus group discussions were organized: one with pilots (four participants) and one with ATCs (five participants). Interview questions encouraged participants to recount specific communication episodes and reflect on how deviations from expected communication patterns were perceived and managed during operational interaction. Focus group discussions complemented the interviews by enabling participants to collectively reflect on shared professional norms and communication challenges.

### **Data Analysis**

Data analysis followed a thematic analysis approach informed by EVT (Vaismoradi et al., 2013). The analysis proceeded through several stages. First, transcripts were repeatedly reviewed to achieve data familiarization. Second, open coding was conducted to identify segments describing communicative expectations, deviations, and responses to such deviations. Third, related codes were grouped into broader themes corresponding to EVT constructs, including expectancy formation, violation appraisal, communicator credibility, and adaptive communication strategies. Complementary theoretical perspectives, including Symbolic Convergence Theory and Communication Accommodation Theory, were used to support interpretation of shared communication scripts and adaptive speech practices.

### **Ethical Considerations and Research Rigor**

All interviews and discussions were audio-recorded with participants' informed consent and transcribed verbatim. Ethical approval was obtained prior to data collection, and participants were assured of confidentiality and anonymity through the use of pseudonyms. To enhance analytical rigor, investigator triangulation was employed, with multiple researchers reviewing and discussing emerging themes. Methodological triangulation was also achieved by comparing patterns across interviews, focus groups, and expert reflections, thereby strengthening the credibility and interpretive validity of the findings.

## **RESULTS AND DISCUSSION**

The findings reveal that pilot–air traffic controller (ATC) communication is experienced by participants not merely as a technical exchange of instructions but as a continuous process of meaning negotiation shaped by institutional expectations, situational pressures, and relational trust. Across interviews and focus group discussions, participants consistently emphasized that shared understanding rather than procedural compliance alone is perceived as the most critical determinant of both aviation safety and psychological comfort at work. This shared understanding is constructed through highly standardized communication routines, yet it is constantly tested by operational realities that generate deviations from expected communicative behavior.

Table 1. Analytical Matrix of Pilot Interviews and Focus Group Discussions (FGD)



Dimension	Interview Findings (Pilot)	FGD Findings (Pilot)	Main Synthesis
Communication – Process	“Pilots are required to perform readback...” (AN). “If there is ambiguity... use ‘say again’.” (AN).	“Every instruction must be repeated, then ATC reconfirms.” (Pilot A). “If it is unclear... say again.” (Pilot B).	Communication functions as a multilayered verification loop that demands complete accuracy.
Communication – Content	“In Australia, ATC said ‘extended maintain...’ which was confusing.” (AN).	“Terminology differs across countries... it can be confusing.” (Pilot C). “If ATC speaks calmly, we feel more confident.” (Pilot D).	Communication content is not only technical but also affective. International standardization and emotional regulation are crucial.
Technology / Process	“Clearance and pushback used to be on one frequency; now they are separated.” (AN). “Radar and GPS are more advanced.” (AN).	“CPDLC is like text messaging, but not for emergencies.” (Pilot B). “For emergencies, we still rely on radio.” (Pilot C).	Technology serves as support and backup; however, voice communication (radio) remains the priority in critical situations.
Protocols – Safety	“A split-second decision to go around... divert to Palembang.” (AN).	“You must make split-second decisions, for example diverting due to bad weather.” (Pilot D). “Flight hours are regulated.” (Pilot B).	Safety is maintained through rapid decision-making, adherence to SOPs, and regulated flight hours to prevent fatigue (fatigue management).
Organizational Culture	“There is a Pilot–ATC Communication Forum... where we share challenges.” (AN).	“We have a communication forum... to share constraints.” (Pilot A). “Work matters must not be mixed with personal matters.” (Pilot C).	Aviation organizational culture emphasizes cross-role collaboration and professional discipline.
Attribution – Competence	“As an instructor, I assess cadets’ radiotelephony skills.” (AN).	“Cadets must be trained in how to communicate with ATC.” (Instructor). “Learning from seniors is very helpful.” (Pilot D).	Communication competence is developed through formal training, mentoring, and intergenerational experience.
Workplace Wellbeing	“When the aircraft malfunctioned... ATC helped prioritize landing.” (AN). “Work–life balance is maintained despite random schedules.” (AN).	“I once received priority landing assistance; it was very reassuring.” (Pilot B). “Even with random schedules, we can still arrange family time.” (Pilot A).	Wellbeing is shaped by ATC support in the cockpit and organizational as well as family support outside the cockpit.



## **Thematic Synthesis**

### **1. Communication – Process**

Both the interviews and the FGD emphasize the readback–hearback mechanism as a vital communication cycle. Clarification strategies such as “say again” or “speak slower” function as adaptive responses to noise, accents, or rapid speech. The synthesis indicates that pilot–ATC communication constitutes a multilayered verification loop serving as a primary safeguard for safety.

### **2. Communication – Content**

The interviews highlight differences in terminology across countries, while the FGD adds the influence of ATC tone of voice on pilot confidence. The synthesis demonstrates that communication content encompasses both technical precision and affective dimensions. While international standardization is essential, emotional aspects significantly shape interaction quality.

### **3. Technology / Process**

Interviews stress the role of radar, GPS, and frequency separation in reducing workload. The FGD describes CPDLC as a complementary tool while reaffirming radio as the principal instrument. The synthesis concludes that technology operates as a supporting system enhancing safety, yet real-time voice communication remains the priority.

### **4. Protocols – Safety**

Both data sources emphasize rapid decision-making (e.g., go-around procedures, diversion) as central to safety. The FGD further highlights the urgency of fatigue management and flight-hour limitations. The synthesis suggests that safety protocols from the pilot perspective integrate critical decision-making capacity with structured fatigue regulation.

### **5. Organizational Culture**

Interviews reveal the existence of pilot–ATC communication forums, while the FGD deepens the discussion by emphasizing professionalism and ethical conduct. The synthesis indicates that aviation organizational culture is constructed through cross-role collaboration and disciplined professionalism that separates work from personal matters.

### **6. Attribution – Competence**

Interviews demonstrate the instructor’s role in evaluating and guiding cadets, whereas the FGD underscores intergenerational mentoring. The synthesis reveals that communication competence emerges from the integration of formal training, radiotelephony practice, and collective learning.

### **7. Workplace Wellbeing**

Interviews highlight positive experiences of ATC support and work flexibility, while the FGD reinforces the importance of family support and ATC assistance during emergencies. The synthesis indicates that pilot wellbeing depends on supportive professional interactions that foster a sense of safety, alongside social and organizational support that sustains work–life balance. This synthesis reveals that interviews tend to capture the individual perspective of pilots, whereas the FGD explores collective and cultural dimensions. Together, they provide a comprehensive understanding of pilot communication, competence, safety, and wellbeing.



Table 2. Analytical Matrix of ATC Interviews and Focus Group Discussions (FGD)

Dimension	Interview Findings (ATC)	FGD Findings (ATC)	Main Synthesis
<b>Communication – Content</b>	Use of standardized phraseology; use of general English outside standard situations; accommodation of speech rate for non-native pilots	Standardization of phrases; pronunciation variations (e.g., “niner” vs. “nine”); importance of a calm tone of voice	Consistency of standards provides certainty; however, flexibility (general English, tone of voice) is necessary for effectiveness and psychological safety. Pronunciation ambiguity requires reinforcement training.
<b>Communication – Process</b>	Main challenge: message reception (dialect, noise); “say again” strategy and second opinion; involving another pilot for clarification	Readback–hearback as a mandatory mechanism; distinction between instruction and clearance; conditional compliance (e.g., weather constraints)	Both sources emphasize communication as an interactive loop with layered verification. Flexibility and negotiation strengthen trust without compromising safety.
<b>Technology / Process</b>	CPDLC used in TMA/ACC; direct voice in APP/TWR; frequency redundancy to address interference; improved quality compared to older HF systems	Combination of radio and CPDLC; redundancy tools (e.g., gunlight, ARTIS); CPDLC as a solution for maritime/remote coverage	Technology functions both as a backup system and an extension of operational reach. Limitations remain; therefore, dual literacy (voice and text) is essential.
<b>Protocols – Safety &amp; Efficiency</b>	Prohibition of informal communication; impact on sector capacity; priority protocol (emergency → safety → VIP); emergency channels	No room for error; rapid decision-making; FRMS and duty-hour control; non-surveillance operations require pilot reporting integrity	The synthesis demonstrates a balance between efficiency (brevity) and safety protocols. FRMS and communication prioritization serve as key safeguards against fatigue and error.
<b>Organizational Culture</b>	Cross-authority coordination (meteorological agency, air force, airport authority, police); escalation chain from operations manager to air force; clear SOPs	Cross-role interaction (Operations Room visits, Familiarization Flights); SMS unit and lessons learned; recurrent training and simulation; professional ethics	A safety culture is reinforced through multi-stakeholder collaboration and continuous organizational learning. Ethical standards maintain professionalism and reduce relational bias.
<b>Attribution – Role/Competence</b>	ATC–Pilot relationship based on equality, SOPs, and trust; flexibility when instructions are declined; English Language Proficiency (ELP levels 4–6) influences communicative agility	(FGD emphasizes training and competence through recurrent programs and simulations, integrated within organizational culture)	Linguistic and technical competence form the foundation of effective communication. Trust and shared understanding emerge from role clarity and repeated learning processes.
<b>Workplace Wellbeing</b>	Debriefing and sharing reduce stress; FRMS supports fatigue management; work–life balance through shift exchanges; professional pride	ATC must sound calm despite operational pressure; concerns regarding psychological support and organizational wellbeing	Both findings highlight emotional regulation as a major occupational risk. Wellbeing must be managed through psychosocial support systems and stronger organizational policies.



## **Thematic Synthesis**

### **1. Communication – Content**

The interviews emphasize the importance of phraseology as the standardized operational language, with general English used in abnormal or non-standard situations. The FGD further identifies pronunciation variation and the significance of maintaining a calm tone of voice. The synthesis indicates that while standardization ensures accuracy, affective communication particularly tone and flexibility significantly influence psychological safety and operational confidence.

### **2. Communication – Process**

Both data sources stress the multilayered verification mechanism. The interviews highlight strategies such as “say again” and seeking second opinions, whereas the FGD underscores the readback–hearback requirement. The synthesis suggests that ATC–pilot communication constitutes an adaptive, trust-based dialogic loop rather than a one-directional command structure.

### **3. Technology / Process**

Both interviews and FGD findings emphasize the complementary role of CPDLC alongside voice communication. Interviews underline frequency redundancy, while the FGD introduces additional redundancy tools such as gunlight and ARTIS. The synthesis indicates that ATC communication systems are inherently multi-layered to ensure operational continuity in the presence of interference.

### **4. Protocols – Safety & Efficiency**

The interviews stress communication channel efficiency, including the prohibition of informal talk and its impact on sector capacity. The FGD focuses on safety-critical protocols such as FRMS, rapid decision-making, and non-surveillance operations. The synthesis demonstrates that effective traffic management requires balancing brevity for capacity management with redundancy for safety assurance.

### **5. Organizational Culture**

The interviews portray coordination with external authorities, whereas the FGD highlights internal organizational learning mechanisms such as Safety Management System (SMS) units, recurrent training, and simulation exercises. The synthesis suggests that ATC culture combines external collaboration with continuous internal learning, bounded by professional ethics.

### **6. Attribution – Role/Competence**

The interviews emphasize equality and trust in the ATC–pilot relationship, along with the influence of English Language Proficiency (ELP). The FGD reinforces the importance of recurrent training and simulation in sustaining competence. The synthesis indicates that technical and linguistic competence forms the communicative foundation, while trust preserves interactional cohesion.

### **7. Workplace Wellbeing**

The interviews highlight debriefing practices and work–life balance mechanisms, while the FGD emphasizes emotional pressure and the limited availability of formal psychological support. The synthesis suggests that ATC wellbeing requires a systemic approach, encompassing not only individual coping strategies but also structured organizational support and policy reinforcement.



Participants described standardized phraseology, call-sign discipline, and readback–hearback loops as the foundational structures that anchor pilot–ATC interaction. These routines function as what several participants referred to as a “common language” that reduces ambiguity and provides reassurance, particularly in high-density airspace and time-pressured situations. This finding aligns with prior aviation communication research emphasizing the role of linguistic standardization in minimizing error (Davison et al., 2003; Nevile, 2006; Yang et al., 2023). However, participants also made clear that these protocols are not experienced as rigid scripts but as shared symbolic resources that enable coordination. From a Symbolic Convergence Theory perspective, standardized phraseology operates as a recurring symbolic form that reinforces collective consciousness around safety and professionalism (Bormann, 1985; Littlejohn et al., 2016).

Despite the stabilizing function of these shared routines, participants reported that deviations from expected communication patterns are frequent and often unavoidable. High traffic volume was repeatedly identified as a primary source of deviation, compelling ATCs to compress instructions, reduce redundancy, or adjust sequencing in ways that depart from idealized protocol. Pilots acknowledged that such deviations are often operationally necessary, yet they also noted that compressed or rapidly delivered instructions increase cognitive load, particularly when combined with other demands such as weather avoidance or cockpit task saturation. These accounts echo findings from human factors research linking workload and time pressure to increased communication vulnerability (Prinzo & Britton, 1993; Molesworth & Estival, 2015).

Weather variability emerged as another significant source of expectancy disruption. Participants described situations in which rapidly changing weather conditions required ATCs to issue sudden rerouting or altitude changes that contradicted earlier clearances. Pilots noted that such changes can create momentary confusion or frustration, especially when similar aircraft appear to receive different instructions. From an EVT perspective, these moments represent expectancy violations related not only to message content but also to procedural consistency and perceived fairness. Whether such violations were appraised negatively depended largely on whether pilots trusted the ATC’s situational awareness and competence, reinforcing EVT’s emphasis on communicator reward value in violation appraisal (Burgoon, 1993).

Language and accent variation constituted another recurring theme in participants’ accounts. Although English phraseology is internationally standardized, participants acknowledged that pronunciation differences, speech rate, and local linguistic habits sometimes complicate interpretation. ATCs described deliberate efforts to adjust speech rate or simplify wording when communicating with non-native speakers, while pilots reported heightened attentiveness and reliance on verification loops in such interactions. These findings are consistent with earlier studies on language barriers in aviation communication (Davison et al., 2003) and are well explained by Communication Accommodation Theory, which highlights how communicators adapt their speech to reduce misunderstanding and manage social distance (Gallois & Giles, 2015). In EVT terms, accommodation practices often functioned to mitigate the negative impact of expectancy violations by signaling cooperation and professionalism.



Human factors such as fatigue, boredom, and emotional strain were also identified as subtle but influential contributors to communicative deviation. Participants described fatigue-related slips, such as misarticulated numbers or delayed responses, as well as reduced vigilance during low-traffic periods that could compromise attentiveness. These deviations were generally interpreted as unintentional and were more readily forgiven when relational trust was high. However, participants acknowledged that repeated or poorly managed lapses increased stress and concern, particularly in complex airspace. These findings resonate with aviation psychology research documenting the impact of fatigue and stress on performance and communication accuracy (Chill et al., 2020; DeHoff & Cusick, 2018).

A particularly salient finding concerns how participants evaluated the emotional tone of communication. Changes in intonation, pacing, or firmness were frequently interpreted as indicators of urgency, irritation, or reassurance. Pilots reported that a calm but firm ATC voice during emergencies often had a reassuring effect, even when instructions deviated from standard phrasing. Conversely, abrupt or irritated tones were described as increasing tension and cognitive load. These observations align closely with EVT's assertion that nonverbal and paralinguistic cues play a crucial role in expectancy formation and violation appraisal (Burgoon & Hale, 1988). Tone, in this sense, became a key determinant of whether deviations were experienced as supportive or disruptive.

Trust emerged as a central interpretive filter through which expectancy violations were evaluated. Participants repeatedly emphasized that familiarity with an ATC's voice, perceived professionalism, and prior positive interactions significantly influenced how deviations were interpreted. When trust was high, pilots were more likely to interpret non-standard instructions as situationally justified and to comply without hesitation. When trust was lower, similar deviations triggered increased verification, hesitation, or stress. This finding is consistent with organizational communication research demonstrating that trust amplifies communication effectiveness and buffers the negative effects of uncertainty (Zeffane, 2010; Chatzi et al., 2020).

Beyond immediate safety implications, participants explicitly linked communication quality to their psychological experience at work. Effective communication characterized by predictability, respectful tone, and timely clarification was described as reducing anxiety and fostering professional confidence. In contrast, recurrent ambiguity or emotionally charged interactions were associated with heightened stress, emotional fatigue, and lingering frustration. These accounts align with broader workplace wellbeing literature emphasizing that communication practices shape affective outcomes, including stress regulation, engagement, and professional identity (Danna & Griffin, 1999; Deci & Ryan, 2008; Czerw, 2019; WHO, 2022). Importantly, participants did not view wellbeing as separate from safety; rather, they perceived emotional stability and trust as enabling clearer thinking and better decision-making under pressure.

Expert participants reinforced these findings by emphasizing the human dimension of aviation communication. They highlighted that pilot-ATC interaction involves not only human-human communication but also human-machine interaction, as both pilots and ATCs must integrate technological data with verbal exchanges. Experts also noted that training and mentorship



systems play a crucial role in shaping communicative expectations, professional norms, and emotional regulation skills. These observations echo organizational communication research underscoring the role of internal communication culture, leadership, and learning environments in sustaining performance and wellbeing (Heide & Simonsson, 2020; Men & Verčič, 2021; Kartikawangi, 2024).

Taken together, the findings demonstrate that pilot–ATC communication is best understood as a dynamic process of expectancy management embedded within institutionalized safety systems. Standardized protocols create shared meaning and predictability, but operational pressures inevitably generate deviations that must be interpreted and managed. Expectancy Violations Theory provides a robust explanatory lens for understanding why some deviations are absorbed as adaptive coordination while others amplify risk and stress. Communication accommodation and trust function as critical mechanisms that shape violation appraisal, linking interactional dynamics to both safety outcomes and workplace wellbeing.

## **Discussion**

This study set out to explain pilot–air traffic controller (ATC) communication not as a purely technical exchange but as an interactional process shaped by expectations, interpretation, and relational dynamics. The findings demonstrate that communication effectiveness in aviation cannot be adequately understood through procedural compliance alone. Instead, communication emerges as a continuous process of expectancy management in which standardized protocols, situational pressures, and interpersonal trust intersect to shape both safety outcomes and workplace wellbeing. By grounding the analysis in Expectancy Violations Theory (EVT), this study advances a communication-centered explanation that complements and extends existing aviation psychology and human factors research.

From a theoretical perspective, the findings substantiate EVT’s central proposition that deviations from expected communicative behavior are not inherently negative but acquire meaning through appraisal processes (Burgoon, 1978, 1993; Burgoon & Hale, 1988). In the context of pilot–ATC communication, standardized phraseology and readback–hearback loops function as institutionalized expectancy frameworks that stabilize interaction and reduce uncertainty, consistent with prior research on linguistic standardization and safety (Davison et al., 2003; Nevile, 2006; Yang et al., 2023). However, the study shows that operational realities such as traffic density, weather volatility, linguistic diversity, and human fatigue inevitably generate deviations from these expectations. EVT provides the explanatory mechanism for understanding why such deviations sometimes facilitate adaptive coordination and, at other times, generate stress or perceived risk.

The discussion extends EVT by demonstrating that expectancy in aviation is not merely interpersonal but deeply institutionalized. Expectations are embedded in international regulations, professional training, and organizational safety culture, reflecting what high-reliability organization (HRO) theory describes as preoccupation with failure and sensitivity to operations (Weick & Sutcliffe, 2015). Yet, while HRO theory explains why redundancy and vigilance are structurally necessary, it does not account for how individuals interpret and respond to deviations at the interactional level. This study bridges that gap by showing that the effectiveness of HRO



communication practices depends on communicators' ability to evaluate and manage expectancy violations without undermining trust or shared meaning.

The findings also deepen understanding of the role of symbolic convergence in aviation communication. Standardized phraseology and recurring communication scripts function as symbolic forms that generate shared meaning and collective consciousness around safety, professionalism, and responsibility (Bormann, 1985; Littlejohn et al., 2016). Deviations from these scripts disrupt symbolic convergence, triggering heightened attention and interpretive effort. The study shows that successful communication repair often involves restoring symbolic alignment through clarification, repetition, or accommodation, reinforcing the notion that shared meaning is actively maintained rather than passively assumed. This insight advances discourse-oriented aviation research by linking linguistic structure to interpretive and affective processes.

Communication Accommodation Theory further illuminates how pilots and ATCs actively manage expectancy violations in situ. The findings demonstrate that accommodation strategies such as adjusting speech rate, simplifying language, or modulating tone play a critical role in shaping how deviations are appraised. These adaptive behaviors often signal cooperation, competence, and respect, thereby increasing the likelihood that violations are interpreted positively (Gallois & Giles, 2015; Chatzi et al., 2020). This supports and extends prior organizational communication research showing that adaptive communication practices enhance trust and relational quality in high-stakes environments (Zeffane, 2010; Men & Verčič, 2021).

Trust emerges as a pivotal concept linking communication processes to both safety and wellbeing. The study's findings indicate that trust functions as an expectancy buffer, moderating the impact of deviations on cognitive load and emotional response. When pilots trust ATCs' competence and intentions, they are more willing to accept non-standard instructions and less likely to experience heightened stress. Conversely, low trust amplifies the perceived risk of deviations, increasing verification behavior and emotional strain. These findings align with organizational communication scholarship emphasizing trust as a foundational element of effective internal communication and crisis response (Heide & Simonsson, 2020; Kim & Krishna, 2017) and reinforce EVT's emphasis on communicator reward value in violation appraisal.

The discussion also highlights the importance of affective and wellbeing dimensions in aviation communication, an area that has received comparatively limited attention in prior research. Participants' accounts show that communication quality directly shapes emotional regulation, professional confidence, and perceived work-life balance. Effective communication characterized by predictability, respectful tone, and timely repair of deviations contributes to reduced anxiety and sustained engagement, whereas recurrent ambiguity or emotionally charged interactions exacerbate fatigue and stress. These findings resonate with workplace wellbeing theories that conceptualize wellbeing as involving competence, autonomy, relatedness, and emotional stability at work (Danna & Griffin, 1999; Deci & Ryan, 2008; Czerw, 2019; WHO, 2022). Importantly, the study demonstrates that wellbeing is not ancillary to safety but constitutive of it: emotional stability and trust enable clearer thinking and more effective decision-making under pressure.



By integrating EVT with wellbeing perspectives, the study responds to recent calls within crisis communication and organizational communication scholarship to consider the human sustainability of high-pressure work environments (Coombs, 2021; Kartikawangi, 2024). Aviation is often treated as a technical system optimized for safety, yet the findings suggest that neglecting the psychosocial dimensions of communication may undermine both safety and performance over time. This insight is particularly relevant in Asian contexts, where organizational communication research increasingly emphasizes relational harmony, collective responsibility, and cultural sensitivity as components of effective communication (Men & Verčič, 2021; Chon, 2019).

Further the result underscores the role of organizational culture and learning systems in shaping communicative expectations and repair practices. Expert participants emphasized the importance of mentorship, training, and continuous professional development in cultivating communicative competence and emotional regulation. This aligns with prior research demonstrating that internal communication practices, leadership support, and organizational culture significantly influence employee engagement and communication effectiveness (Chmielecki, 2015; Bojadjev & Vaneva, 2021; Prasetya & Kartikawangi, 2021). In the Indonesian context, earlier studies have similarly shown that guidance from supervisors and institutional norms are crucial for sustaining effective communication in technologically mediated environments (Adam & Kartikawangi, 2018; Dahesihsari & Kartikawangi, 2020; Kartikawangi & Dahesihsari, 2020).

Taken together, the positions of pilot–ATC communication is a dynamic, meaning-centered process through which safety and wellbeing are co-produced. The study advances communication scholarship by extending Expectancy Violations Theory into high-reliability organizational contexts, demonstrating how symbolic convergence stabilizes shared meaning, how accommodation enables adaptive repair, and how trust moderates the affective consequences of communicative deviations. By doing so, it moves beyond error-centric models of aviation communication and offers a theoretically integrated explanation that aligns with the Asian Journal of Communication’s emphasis on theory-driven analysis of communication processes shaping relational, organizational, and societal outcomes.

### **Theoretical Contribution**

The primary theoretical contribution of this study lies in extending Expectancy Violations Theory into the domain of high-reliability organizational communication. While EVT has traditionally been applied to interpersonal and small-group contexts, this study demonstrates that expectancy processes are equally salient and arguably more consequential in institutionalized, safety-critical systems such as aviation. The findings show that communicative expectations in pilot–ATC interaction are not merely interpersonal but structurally embedded in international regulations, organizational training, and professional role asymmetries. This institutionalization intensifies expectancy density, rendering deviations highly salient and cognitively demanding.

By empirically demonstrating how expectancy violations are appraised through perceived competence, trust, and situational legitimacy, the study advances EVT beyond a binary notion of violation versus compliance. It shows that deviations from standardized phraseology or procedure



are not inherently dysfunctional; rather, their consequences depend on how they are interpreted within a relational and organizational context. This insight provides a theoretically grounded explanation for variability in aviation communication outcomes that prior error-focused models struggle to account for (Cushing, 1994; Davison et al., 2003; Yang et al., 2023).

The study also contributes to communication theory by integrating EVT with Symbolic Convergence Theory and Communication Accommodation Theory. Symbolic Convergence Theory explains how standardized phraseology and recurring communicative scripts generate shared meaning and collective consciousness around safety, while EVT explains how disruptions to these scripts are evaluated. Communication Accommodation Theory elucidates how pilots and ATCs actively manage deviations through adaptive speech strategies, thereby shaping violation appraisal. Together, these theories form a multi-level explanatory framework that connects symbolic meaning, interactional adaptation, and evaluative judgment in high-stakes communication.

Importantly, the study bridges communication theory with high-reliability organization (HRO) theory by demonstrating that structural safeguards alone cannot ensure reliability. While HRO principles emphasize redundancy and vigilance (Weick & Sutcliffe, 2015), this research shows that reliability is ultimately enacted through communicators' interpretive competence. EVT provides the missing micro-level mechanism explaining how institutional norms are translated into moment-to-moment interactional decisions. In doing so, the study aligns with Asian Journal of Communication's emphasis on theory-driven explanations of communication processes shaping organizational outcomes (Chon, 2019; Kim & Krishna, 2017; Kim, 2023).

A further theoretical contribution lies in linking communication processes to workplace wellbeing. By demonstrating that expectancy violation appraisal affects stress regulation, emotional fatigue, and professional confidence, the study integrates EVT with workplace wellbeing theories (Danna & Griffin, 1999; Deci & Ryan, 2008; Czerw, 2019). This integration advances communication scholarship by positioning wellbeing not as an ancillary outcome but as a constitutive dimension of communication effectiveness in high-pressure organizational environments. In aviation, where sustained cognitive and emotional demands are unavoidable, this contribution is particularly salient.

### **Practical Implications**

Beyond its theoretical contributions, the study offers important practical implications for aviation communication training, organizational policy, and safety management. The findings suggest that efforts to improve pilot-ATC communication should move beyond exclusive emphasis on procedural compliance and technical proficiency to include expectancy awareness and interpretive competence. Training programs that explicitly address how deviations are perceived and evaluated by both pilots and ATCs can enhance professionals' ability to manage non-standard situations without escalating stress or compromising safety.

The findings underscore the importance of communication training that incorporates expectancy management and accommodation strategies. Enhancing awareness of how tone, pacing, and linguistic adaptation influence violation appraisal may help professionals intentionally



signal competence and cooperation during abnormal operations. This is particularly relevant in multilingual and high-density airspace, where linguistic accommodation has been shown to reduce miscommunication and foster trust (Davison et al., 2003; Gallois & Giles, 2015; Chatzi et al., 2020). Incorporating these insights into recurrent training and simulator scenarios can strengthen both operational coordination and emotional regulation.

The role of trust identified in this study also carries significant implications for organizational culture and leadership. Trust functions as an expectancy buffer, moderating the impact of communicative deviations on stress and cognitive load. Organizational policies that foster trust through consistent leadership communication, peer support mechanisms, and transparent incident debriefing can therefore enhance both safety and wellbeing. This aligns with internal communication and crisis communication research emphasizing communicative coworkership, supportive leadership, and relational transparency as foundations for resilience (Heide & Simonsson, 2020; Coombs, 2021; Kartikawangi, 2024).

Furthermore, the explicit link between communication quality and workplace wellbeing suggests the need for more systematic psychosocial support within aviation organizations. While technical and procedural safeguards are well established, emotional and relational support mechanisms such as peer debriefing, counseling access, and structured reflection after high-stress operations remain uneven. Integrating communication-centered wellbeing initiatives into safety management systems may help mitigate fatigue and emotional strain, supporting sustained performance over time (Chill et al., 2020; WHO, 2022).

Finally, the findings have implications for regulatory and policy development. Regulators and aviation authorities may benefit from incorporating communication-theoretic insights into guidance on human factors and safety culture. Recognizing that deviations are inevitable in complex systems, policy frameworks should support communicative flexibility grounded in professional competence and trust, rather than treating all deviations as procedural failure. Such an approach aligns with contemporary views of safety as adaptive performance rather than mere rule adherence and reinforces the human-centered orientation of modern aviation safety management.

In sum, by explicitly articulating both its theoretical contribution and practical implications, this study demonstrates that pilot–ATC communication is a critical site where safety and wellbeing are jointly produced through expectancy management. The findings reinforce the value of communication theory for understanding and improving high-reliability organizational practice and contribute to Asian Journal of Communication’s broader project of advancing theory-driven, socially consequential communication scholarship.

## CONCLUSION

This study reconceptualizes pilot–air traffic controller (ATC) communication as a process of expectancy management within high-reliability organizational systems. Grounded in Expectancy Violations Theory (EVT), the findings show that communication effectiveness in aviation is shaped not only by adherence to standardized procedures but also by how deviations from expected communicative behavior are interpreted and managed in real time. Standardized



phraseology and verification protocols provide important expectancy structures that stabilize interaction, yet operational pressures frequently generate deviations that must be addressed through trust, communicative accommodation, and interpretive competence. In this sense, operational safety and workplace wellbeing emerge as interconnected outcomes of communication processes.

The study contributes to communication scholarship by extending EVT into a high-reliability organizational context and demonstrating how expectancy formation, violation appraisal, and communicator credibility shape interactional outcomes in aviation communication. By integrating EVT with complementary communication perspectives, the study provides a framework for explaining why certain communicative deviations facilitate adaptive coordination while others intensify stress and perceived operational risk.

The findings also carry practical implications for aviation organizations. Communication training programs should incorporate expectancy awareness, interpretive judgment, and communicative accommodation alongside procedural accuracy. Such training can help aviation professionals manage non-standard communication situations more effectively without compromising safety or increasing stress.

Future research is encouraged to further examine communication processes in high-reliability environments through comparative and mixed-methods approaches. Investigating how communicative expectations evolve across different cultural and organizational contexts may provide deeper insights into the relationship between communication practices, operational reliability, and professional wellbeing.

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