LUND UNIVERSITY
School of Aviation

When Not Following Procedures Is a Safer Way: A Study on Selective Intentional Non-Compliance

Daniel Vagner Ankersø & Søren Nielsen

Bachelor Thesis 15 Credits
Bachelor program in Aviation,
Later Part
FLYF01
Spring Semester 2025

Supervisor: Nicklas Dahlström

When Not Following Procedures Is a Safer Way: A Study on Selective Intentional Non-Compliance

Daniel Vagner Ankersø & Søren Nielsen

Lund 2025

Bachelor Thesis 15 Credits
Bachelor program in Aviation, Later Part
FLYF01
Spring Semester 2025

Supervisor: Nicklas Dahlström

Title:
When Not Following Procedures Is a Safer Way: A Study on Selective Intentional Non-Compliance

Authors: Daniel Ankersø & Søren Nielsen

Number of pages: 30

Keywords:
Aviation Safety, Selective Intentional Non-Compliance (SINC), Human Factors, Procedure Compliance, Pilot Behaviour

Abstract
This study investigates the concept of Selective Intentional Non-Compliance (SINC) in aviation. Deliberate, context-driven deviations from procedures motivated by safety in response to dynamic operational conditions. Based on a survey of 39 European commercial pilots, we analysed the prevalence, motivations, and perceived outcomes of procedural deviations. Nearly 43% reported deviating from standard operating procedures (SOPs) occasionally or frequently in the past year. Of these, 29% indicated safety as the primary reason. The study found that rigid adherence to SOPs is not always perceived as the safest course of action and that well-judged deviations may enhance safety in complex operational scenarios. The findings also revealed underreporting of such deviations, likely due to fear of reprisal or normalization of success-driven deviations. The research supports the view that adaptive decision-making based on situational awareness is a critical safety asset. SINC appears to be a real, underrecognized behaviour that, when properly understood and supported, could inform procedural design and pilot training. The study highlights the need to reframe non-compliance in safety management systems and training to reflect the nuanced realities of dynamic flight operations.

Lunds Universitet Trafikflyghögskolan
Lunds tekniska högskola
Lunds universitet
Box 118
221 00 Lund

http://www.tfhs.lu.se

Telefon: 0435 – 44 54 00

Lund University School of Aviation
Faculty of Engineering
Lund University
P.O. Box 118
SE-221 00 Lund
Sweden

http://www.lusa.lu.se

Telephone: +46 435 44 54 00

Contents

List of Figures and Tables

1. Introduction

The aviation industry has long been instrumental in development and shaping of models for safety management and high-reliability operations. Procedures are viewed as one of the foundational layers for positive safety performance and under the assumption that strict compliance with standard operating procedures, checklists, and company policies take place for these to have effect (IATA, 2023). This belief, that procedural compliance equals safety is deeply embedded in both airline operations and regulatory frameworks, shaping how flight crew are born and raised, trained, mentored and evaluated. However, as the operational environment grows increasingly complex, dynamic, and unpredictable, dominant voices inside the realm of human factors (Dekker, 2003) and safety science have begun to question whether strict compliance with procedures always - and in all instances - is the safer path to take. This inspired us, and we therefore set out to investigate and, if possible, to quantify evidence to support whether this is in fact the case and seek to answer the question: Does procedure compliance, in all cases, lead to optimal safety outcomes?

Our dissertation took a critical stance toward this assumption as our hypothesis was that compliance is not always the safer option. Mindful of procedure design, in accordance with National Aeronautics and Space Administration's (NASA) Designing Flight Deck Procedures, we set out with the hypothesis that intentional non-compliance - support and enhance flight safety and certainly do not compromise it.

Although our hypothesis may seem controversial, it aligns with established perspectives such as Hollnagel's Safety-I and Safety-II (Hollnagel, 2015), which emphasize the essential role of humans in ensuring system flexibility and success. Similarly, Rankin et al. (2000), in their article Development and Evaluation of the Maintenance Error Decision Aid (MEDA) Process, highlight the importance of human adaptability in high-risk environments, framing deviations from procedures as often necessary responses to system limitations. These views reflect a broader scientific consensus that underscores the critical role of human adaptability, especially when procedures serve as the foundation for safe operations.

Inspiration for the hypothesis was initially fuelled by Sidney Dekker, and in particular the "Failure to adapt or adaptations that fail: Contrasting models on procedures and safety" (Dekker, 2001), that suggest what we have set out to investigate: That procedural deviations must be managed and applied, when so required, with the aim not to optimize efficacy but strengthen flight safety. In this context it was important for us to underscore that we did not wish to encourage unjust or misapplied non-compliance but shed light on well-assessed non-compliance as an integral part of flight safety and not inherently dangerous. It was our hypothesis that non-compliance, in some instances, could be the safest path, when procedures or policies do not fully embrace real-world complexity.

1.1 Problem Statement

Procedures in aviation are aimed at reducing ambiguity, ensuring crew coordination and promote a consistent work-model across a wide palette of operations. They should be built from Original Engineering Manufacturer (OEM) recommendations, i.e. Boeing or Airbus, and tailored to meet operational needs and engineered through thorough risk assessment with a deep

understanding of the technology, human and environment-framework (THE) they will be applied in . When designing procedures or policies embedded in such complex elements, clearly it is not possible to develop procedural solutions that fit all situations in such dynamic framework (system failures, fatigue, severe weather, etc.). Therefore, flight crews must decide to intentionally deviate or stray from the perceived safe path of procedure-compliance and take on themselves to non-comply using sound judgement, experience, pattern recognition and risk assessment. Our study thus sprung from this idea, that safety driven intentional non-compliance, may be a necessary and crucial component of safety and that it may be much more utilized and widespread than what is reported or recorded in safety-statistics. Part of the underpinning elements of our hypothesis is, that non-compliance is an everyday event, and when detected or reported in context with accident investigations reports, it may not be with direct causality to the accident but rather observed because it is a pseudo-normal and reoccurring event.

The existing literature, along with industry and regulatory guidance, heavily emphasizes the negative consequences of intentional non-compliance and procedural violations, often labelled as corner cutting. This is evident in documents such as the U.S. Department of Transportation's Advisory Circular (Barbagallo, 2017) and statistical data from The International Air Transport Association IATA, 2023). However, we seek to add nuance to this narrative. We argue that a deeper understanding is needed of the root causes behind intentional non-compliance, based on the strong premise that few, if any, pilots or flight crews deliberately choose to be non-compliant out of negligence or ill intent. While much of the current discourse focuses on the risks and failures associated with such actions, our aim is to explore the underlying motivations examining why, how, and under what circumstances deviations occur, under the assumption that many such actions may reflect a genuine commitment to safety rather than wilful disregard. To counter the conventional belief that procedure compliance is always the safer option, we see that as the core of a problematic industry perception and what we set out to challenge.

According to IATA's Safety Review 2023, procedural non-compliance was cited in 13% of aviation accidents in 2022. We hypothesize the reported prevalence of causality between non-compliance and accidents, is due to non-compliance is such a frequently occurring phenomenon that they are found on almost every flight, but mostly only detected and recorded when things have gone wrong. This, often because of accident investigations and rigorous scrutiny in the aftermath of an incident or accident. Very little statistical evidence from situations or events where non-compliance avoided incidents and/or accidents are at hand, which we speculate is because seldomly reported formally (but instead solved with a call to nearest manager, i.e. Chief Pilot with an explanation). Hence, little quantifiable evidence of the opposite is available which we with this dissertation strive to find.

1.2 The Concept of Selective Intentional Non-Compliance

It was our understanding that motivations for non-compliance may stem and flow from various origins, and not always safety alone. To more accurately segment and describe the root causes, because we simply wish to focus on safety-driven non-compliance, we had to describe a type of behaviour that is characterized as an intentional and informed decision to deviate and thus subdivided intentional non-compliance with the introduction of the concept of Selective Intentional Non-Compliance (SINC). SINC is defined in this study as:

"A purposeful and deliberate deviation from policies or procedures when a flight crew's judgement is, that deviating from a procedure could improve flight safety."

A non-routine action, that is based on good situational awareness and expertise with the aim of improving safety or efficiency. High risk assessment and context dependent that lines well up with Dekker's argument from "Adaptions That Fail…" that procedural adaption can enhance flight safety. (e.g., landing from an unstabilized approach due to low fuel or severe weather in the missed approach sector, omitting mandatory briefing-items to lower workload)

Our concept (SINC) separate itself from the traditional understanding of Procedural Intentional Non-Compliance (PINC) as described by James Huntzinger (Agur, 2007); (Giles, 2013) that may also be a result of commercial pressure, performance optimization or simply convenience. SINC, in contrast, is motivated primarily by safety, is non-routine and rooted in the idea that procedures must be applied with judgment, flexibility, and practical sense and can be selectively strayed from when adherence to procedures would weaken flight safety, thus not be safest option. The term selective is essential, as it describe this form of non-compliance and imply it as non-habitual and with strong risk assessment and judgement founded on good situational awareness. This type of non-compliance may be under time pressure (high workload) but always with adequate risk assessment, with safety underpinning intentions. In other words, an informed and deliberate decision to deviate with sound understanding of associated risks involved. The term selective is essential, as it describe this form of non-compliance and imply it as non-habitual and with strong risk assessment and judgement founded on good situational awareness. This type of non-compliance may be under time pressure (high workload) but always with adequate risk assessment, with safety underpinning intentions. In other words, an informed and deliberate decision to deviate with sound understanding of associated risks involved.

The concept of SINC links into Daniel Kahneman's, 2013: Thinking, Fast and Slow as pilots often rely on System 1 in dynamic or time-pressured situations where rapid decision-making is essential. This is where SINC emerges: Experienced pilots, drawing from intuition and pattern recognition, may judge that deviating from SOPs is safer based on contextual awareness. These decisions are not reckless but grounded in tacit expertise, built through experience. In this situation a pilot might construct a new, safer action plan that deviates from the original SOP guided by a fast, experience-based judgment. Furthermore, SINC can be understood through the lens of Gary Klein's Recognition-Primed Decision (RPD) model. The RPD model describes how experienced individuals in time-critical, high-stakes environments make effective decisions not by comparing multiple options, but by recognizing familiar patterns and acting on the first workable solution derived from experience and mental simulation (Klein, 1993). SSINC isn't mindless deviation. It still involves risk assessment and a safety motivation which are properties of System 2 thinking (Kahneman, 2013). Even when the decision is fast, the intentionality and awareness behind SINC suggest pilots are engaging System 2 to validate the deviation (e.g., sound risk assessment). This aligns with our argument that SINC is purposeful, deliberate, and grounded in situational understanding, not impulsiveness.INC is not mindless deviation. It still involves risk assessment and a safety motivation which are properties of System 2 thinking (Kahneman, 2013). Even when the decision is fast, the intentionality and awareness behind SINC suggest pilots are engaging System 2 to validate the deviation (e.g., sound risk assessment). This aligns with our argument that SINC is purposeful, deliberate, and grounded in situational understanding, not impulsiveness.

It is the aviation industry's widespread perception, including frameworks of training and evaluation, that compliance is one of the cornerstones of aviation safety. This may very well be the case; however, pilots anecdotally suggest how procedural limitations are occasionally obstructing safety, and that procedures followed by the letter is problematic and pose new threats. Evidence suggests that rigid procedures may not always accommodate real-world operational challenges (Bureau of Air Safety Investigation, 1997). It was suggested, qualitatively, that procedural deviations are necessary and indeed common in everyday operations, why we wanted to quantify and analyse this, to see if it is in fact such as normal and necessary a phenomenon, as hinted.

1.3 Research Hypothesis and Objectives

Our hypothesis was that selective intentional non-compliance is a frequent, safety-motivated behaviour in commercial aviation, that has a positive, and often overlooked, impact on flight safety. Our objectives of the dissertation were therefore:

1. Develop a working definition of selective intentional non-compliance to segregate a safety-driven form of non-compliance (SINC) to distinguish it from efficacy-driven Procedural Intentional non-compliance (PINC).
2. Quantify and capturing real-world data on safety-driven pilot deviations from procedures.
3. Analyse intentions behind non-routine deviations – especially, whether safety was at the heart of the deviation.
4. Investigate if, and if possible, document, a link between selective non-compliance and improved flight safety could be demonstrated.

1.4 Relevance to Human Factors and Flight Safety Science

Our investigation was at the intersection of human factors, operational safety, and systems thinking. In traditional safety models e.g., the Swiss Cheese Model (Reason, 1990), non-compliance is viewed as a failure and one of the most pervasive human factors issues in aviation maintenance (Key, et al., 2022) and viewed as an action that circumvent protective layers and hence increases operational risks. In contrast, more contemporary models, such as Safety-II and resilience engineering (Hollnagel, 2015), support our theory that human adaptability is a strong capacity to produce successful outcome when gaps between procedure design and reality exist. Adaptive human behaviour should be viewed as a resource for flexibility, that can drive innovative safer solutions and flexibility when so called for.

Viewed through this lens, strict compliance is not inherently all positive and inversely non-compliance not inherently bad. The appropriateness of application of either must therefore be carefully judged in context and with intent. Our dissertation is revolving around a notion that careful selective intentional non-compliance (SINC) can be a manifestation of expertise and strengthening of flight safety and not it's absence.

1.5 Framing the Study

Due to procedural non-compliance being so sensitive in nature, our research engagement with the pilot community was developed with great emphasis on ensuring anonymity and transparency. We wanted open and honest responses, in despite of deviations centred around safety, without colleagues having to fear for reprisal, misunderstood professional stigma or misinterpretation. We prioritized and guaranteed confidentiality and designed a questionnaire in clear language to foster as accurate responses as possible. We avoided control variables that could identify operators or individuals to include real life examples and have deidentified any subsequent data that could link individuals or specific operators, though known to us.

Our aim with the study was not to encourage, endorse or advocate for non-compliance or dismissal of procedures, but to investigate procedural rigidity or blind compliance and curiously examine how sound judgement and appropriate application of selective intentional non-compliance can complement formal procedures and policies in a dynamic environment. Our goal was to bring more nuance and depth to what procedure compliance in fact is, anchored in a data-driven approach using real life examples from pilots and flight crews at the sharp end of the spear and to bring balance to the good old just follow procedure-argumentation.

2. Method

2.1 Research Design

We used a combination of existing literature and data to describe the phenomenon and possibly prove correlation between SINC and perceived improved flight safety. For the harvest of quantitative data, we developed a survey-based questionnaire comprising of 18 questions, that was distributed to a group of intra-European pilots operating in the high-efficiency/low cost-operation. The questions were designed to record and document prevalence, incentives and perceived safety impact of intentional non-compliance. Particularly we wished to filter out non-compliance for efficacy and only include those motivated by safety by asking “why” did you deviate and “what” was the perceived safety contribution or outcome. Our decision to use a predominantly quantitative questionnaire with only a few qualitative questions, was to drive better statistics and scan for correlation between selective intentional non-compliance and perceived safety contribution.

2.2 Participants

The target group for our data harvest, was pilots in commercial operation predominantly in the low-cost environment. This will give a more uniform pilot flight safety perception while operating under more similar workload, that could affect situation awareness. We wanted a group of respondents that had equal precursors for decision making situation awareness and workload. Our respondents are primarily involved in short-haul commercial operations across Europe, ranging in age from 18 to 65 years.

Respondents were recruited through opportunistic sampling, utilizing our private pilot networks and sharing the survey openly within the pilot community. Additionally, we leveraged our personal and professional contacts to reach a broader audience.

2.3 Data Collection Instrument

The study employed an anonymous, online questionnaire to gather data from pilots across varying levels of experience. An academically recognized data collection method, questionnaires represent a sound data collection method for our mixed methods research, that facilitated a robust source to obtain information in a standardized format from a large group of participants. Quantitative and qualitative data are especially suitable when the goal is to identify patterns or correlating trends, or even attitudes across a specific, yet diverse, sample (Creswell & Creswell, 2014); (Bryman, Clark, Foster, & Sloan, 2021) like ours. Our questionnaire included a combination of closed and open-ended questions to amalgamate statistical analysis with qualitative insights, in line with the principles of a mixed methods design.

The questionnaire included both closed-ended questions and a Likert-scale items, grouped (unknown to respondents) in control variables, independent and dependent variables. They were segmented and unveiled:

1. Demographics (age, flight hours, type of operation, aircraft types flown).
2. Procedural Use – frequency of procedural deviations.
3. Motivation – reasons for deviation (e.g., safety, efficiency, workload, etc.).
4. Perceived Impact – subjective assessment of safety outcomes following non-compliance.
5. Attitudes – beliefs about the necessity and value of procedural flexibility.

2.4 Variables and Measures

- Control Variables: Age, current vs. former pilot status.
- Independent Variables: Flight experience, type of operation, aircraft category.
- Dependent Variables: Frequency of non-compliance, motivation for non-compliance and perceived safety outcomes.

To use data for a proper statistical analysis, to detect a possible correlation between SINC and perceived flight safety contribution, a Likert-scale was used to convert responses to numerical values.

2.5 Data Analysis Plan

We analysed the quantitative data from the survey to form descriptive statistics, prove or disprove correlation test for possible associations between:

- Correlation between experience and frequency of selective non-compliance.

- Motivations (safety versus efficiency) for selective non-compliance and perceived outcome (positive, neutral, negative).
- Perceived flight safety-effect of deviations and create overall support for procedural flexibility.

These were just three elements, but we were open and curious to discover other correlations in the process. Open-ended responses were included in the end of the survey for deeper insights and to complement analysis.

2.6 Ethical Considerations

Non-compliance can be subject to professional stigma, reprisal from leadership and misunderstanding. Mindful of the sensitivity of this subject, we placed emphasis on anonymity and de-identified any data that could trace back or identify individuals, organizations, operators or airlines. We carefully chose words such as adaption and flexibility and explained in detail the soul of selective intentional non-compliance, rather than using phrases like procedural violations or rule-breaking behaviour.

2.7 Limitations

In despite of the survey being anonymous and deidentified, it does rely on self-reported and perceived data. This data is inherently subject to bias such as cognition bias, inaccurate or wrong recollection or memory, self-image, social desirability bias or even misunderstanding of own experiences. That makes the data less reliable. Also, within the scope of the data set, it is not possible to prove causality but correlation only, however a follow up study using simulator and line-flight observations with subsequent qualitative interviews could be an interesting avenue to pursue for future research.

3. Result and Discussion

The survey findings aimed at understanding the frequency and understood effects of intentional non-compliance with particular focus on selective intentional non-compliance (SINC) — defined as a form of deliberate deviation from policies or procedures based on a contextual risk assessment solely with the intent of improving flight safety. A total of 39 responses were harvested and analysed, with specific emphasis on respondents that indicated occasionally or frequently selective and intentional deviations from procedures or policies.

3.1 Prevalence and Occurrence of Procedural Deviations

Respondents were asked how often they had deliberately deviated from a policy or procedure in the previous 12 months. The majority had done so at least once:

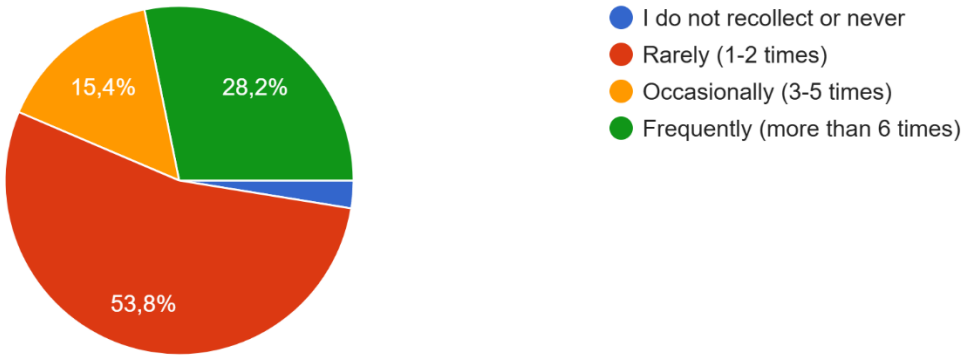


Figure 1: Prevalence and Occurrence of Procedural Deviations

• **Rarely (1–2 times):** 21 respondents (54%)

• **Occasionally (3–5 times):** 6 respondents (15%)

• **Frequently (6 or more times):** 11 respondents (28%)

• **Never / Do not recall:** 1 respondent (3%)

Thus, a total of 43% (17 of 39 respondents) reported occasional or frequent deviations from procedures, indicating that intentional non-compliance from procedure or policy non-compliance is a relatively frequent occurrence in flight operational contexts.

This suggests that intentional non-compliance is not a fringe behaviour but rather a normalized part of daily flight operations for nearly half the surveyed pilots. It supports the idea that strict, unwavering adherence to SOPs is often unrealistic in the dynamic operational context of aviation. The prevalence of deviation suggests that real-world flight environments routinely present situations where SOPs may be impractical or inappropriate, requiring pilots to make contextual judgments. It strengthens our argument that non-compliance is often a response to a complex situation where one needs to look beyond the current situation and plan, not carelessness.

3.2 Classifying the Nature of Non-Compliance

To differentiate between routine/habitual non-compliance and a more safety-driven selective intentional non-compliance (SINC), participants who deviated occasionally or frequently (17 respondents in total[1]) were analysed in terms of their stated individual motivations for not complying with procedure or policy.

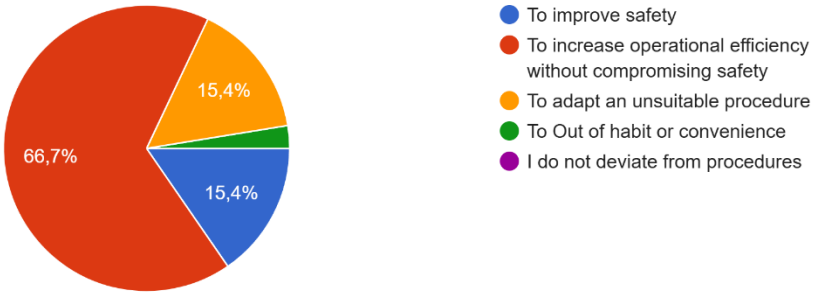


Figure 2: Classifying the Nature of Non-Compliance

Open-ended responses were examined for safety-driven performance indicators (e.g., references to safety, risk, judgment, prevention, emergency, etc.). Out of the 17:

• 5 respondents (29%) indicated SINC by reasoning with grounds in flight safety.

• The rest, 12 respondents (71%), reported motivations, such as deviating for efficacy, commercial pressure, convenience or routine/habit.

This supports the notion that not all non-compliance is directly at strengthen flight safety, and a minority (nearly one-third) of non-compliance appears to be deliberate, considered, and motivated by the perception of increased safety.

These results counter the common narrative that non-compliance stems primarily from laziness or performance pressure. Instead, the data reflects that intentional deviations are purpose-driven, often focused on enhancing safety or preventing deterioration of safety margins. Basically, we can derive that motivation matters and that not all deviations are equal. A safety-driven deviation, even if technically a violation, can in fact protect or optimize the safety envelope, especially in emergent or complex scenarios.

3.3 Safety Margins and Perception of Selective Intentional Non-Compliance (SINC)

In the survey, respondents were asked following question:

"Have you ever been in a situation where following procedures would have decreased safety margins?"

[1] N=17

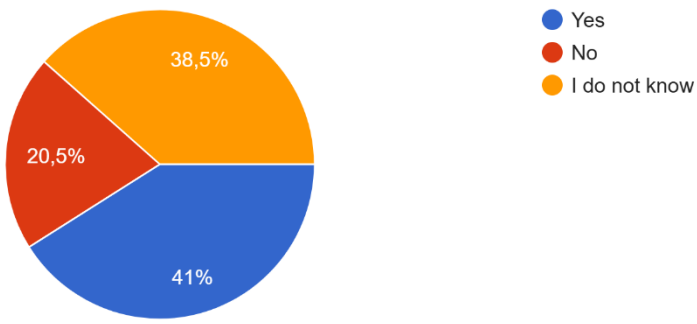


Figure 3: Safety Margins and Perception of SINC

Out the 17 who reported occasional or frequent non-compliance:

• 9 respondents (53%) answered Yes

• 5 respondents (29%) answered I do not know

• 3 respondents (18%) answered No

This supports a conceptual basis for SINC: That strict adherence to procedures is not in all cases understood or perceived as safest course of action, and that flight crews recognize procedural deviation, or selective intentional non-compliance may in some instances improve safety margins. It indicates that in real operational scenarios, SOPs do not always cover the situation, and that rigid application could introduce risk, not mitigate it. As a result, procedures must be complemented with pilot judgment and adaptability. It also validates the rationale behind SINC: that procedural flexibility can be necessary for safety, not just an operational luxury.

3.4 Reporting Culture and Underreporting of Selective Intentional Non-Compliance (SINC)

To explore whether safety-driven deviations are typically reported, participants were asked and to gauge for reporting frequency as part of our hypothesis:

"Have you ever filed a report (e.g., Air Safety Report) related to a procedural deviation when the aim was to strengthen safety?"

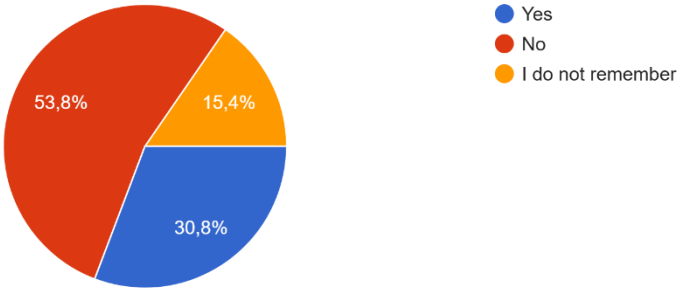


Figure 4: Reporting Culture and Underreporting of SINC

Out of the 17 relevant respondents:

• 6 (35%) answered Yes

• 8 (47%) answered No

• 3 (18%) answered I do not remember

These answers indicate significant underreporting, particularly for non-compliance when it leads to no negative outcome (e.g., incident or accident). It appears that many flight crews underreport safety-driven deviations with positive outcome, for which motivations can only be speculated. Likely, this may be due to organizational cultures, fear of reprisal, peer pressure or professional stigma (Korhonen, 2023). It would be interesting to investigate if belief that positive outcome for perceived negative behaviour do not merit or warrant safety reporting.

This points to a major blind spot in organizational safety data: many safety-positive deviations are never captured. The Safety Management System (SMS), therefore, may reflect a biased dataset, mostly comprising deviations that lead to incidents or accidents.

The data supports our claim that SINC is under-documented, and thus underappreciated, it is heavily unrecorded, despite obvious flight safety benefits and with intentional grounds and solid risk assessment It raises concerns that aviation organizations may penalize deviation uniformly, rather than discerning between reckless and contextually sound behaviour. Encouraging transparent reporting of SINC would improve safety and could also be a feature to introduce in our training programs.

3.5 Perceived Effects of Deviations on Flight Safety

Respondents were asked to report their subjective and individual perceived effects on flight safety margins directly resulting from their deviations:

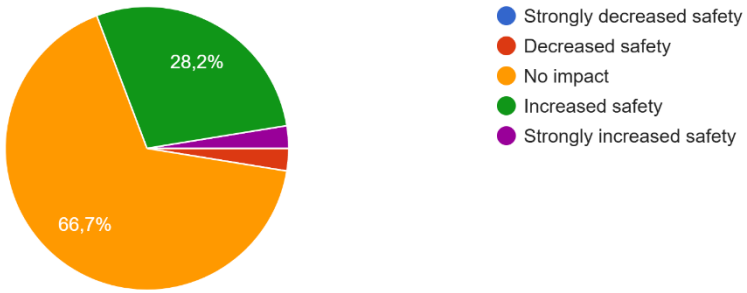


Figure 5: Perceived Effects of Deviations of Flight Safety

• **Increased safety:** 11 (across all frequency groups)

• **No impact:** 26

• **Decreased safety:** 1

No participants in the Frequent or Occasional groups stated that the deviations had negatively affected or decreased flight safety. This support our idea that selective and contextually risk assessed deviations are predominantly perceived as strengthening, or at least neutral in contribution, of flight safety.

This result is particularly significant. Not only do pilots not perceive their deviations as dangerous, but the vast majority also believe they are either neutral or safety-positive. This suggests a high level of situational awareness and responsible decision-making during these deviations.

From this data we can argue that deviations fitting the SINC definition are made with deliberate intent and expert judgment. Rather than bypassing rules for convenience, these deviations demonstrate an understanding of when procedures fall short of reality and when it's safer to adapt.

3.6 Attitudes Toward Flexibility in Procedure Adherence

Respondents were asked if flight crews should be granted operational and contextual flexibility to deviate from procedures when it is perceived as the safer option. Among all respondents:

Figure 6: Attitudes toward Flexibility in Procedure Adherence

• 100% answered Yes

This strong and clear support for flexible decision-making suggests professional consensus that procedural compliance should be flexible with room to embrace a dynamic operational environment. This would be in accordance with procedure design philosophy , though not always clearly emphasized to front line operators. A situationally based judgement of application of procedures is concluded to be viewed as an important pilot core competency.

This total consensus is striking and rare in survey research. It shows that across roles, aircraft types, and experience levels, professional pilots understand the limits of procedural design and value discretion and adaptability as part of their skillset. It strongly supports our argument that procedural flexibility is viewed as a competency, not a risk. The aviation community appears to support SINC as an ethical, safety-driven adaptation, challenging outdated compliance-only mindsets.

Qualitative Examples of SINC

Respondents were asked to share personal examples of situations in flight operations (from check in to check out) when deviations improved safety:

• Modifying aircraft configuration order during approach to reduce pilot workload and enhance situational awareness.

• Omitting packs during take-off due to high cabin temperatures, applying systems knowledge to balance comfort and performance.

• Disconnecting autothrottle to manually control descent rate and avoid a hard landing.

• Starting taxi before completing all briefings in time-critical scenarios where aircraft delay would impact safety margins.

This demonstrated real life cases where situationally determined decision making was employed using systems knowledge, environmental anticipation that validate the concept of SINC as a positive contribution to flight safety.

3.6.1 Summary of Key Findings:

Topic	**Finding**
Non-compliance prevalence	43% of pilots deviated occasionally or frequently in past 12 months
Proportion classified as SINC	29% of these were safety-driven, qualifying as selective non-compliance
Situations where procedures reduce safety	53% have encountered this
Reporting rate of safety-driven deviations	Only 35% had filed a report
Perceived impact on safety	Mostly “no impact” or “increased safety”; rarely “decreased”
Support for flexible procedures	95% of all respondents support flexibility

Table 1: Summary of Key Findings

3.7 Conclusion of Results

The results of our survey yielded solid evidence that intentional non-compliance is a real, frequently occurring and nuanced element of most flight operations. Also, that a considerable subset line up with what we defined as SINC. An intentional and contextual risk assessment that found basis for a deliberate deviation from procedure with the clear aim of upholding or improving flight safety.

Out of the 39 respondents, 17 (43%) testified to deviating from procedures occasionally (3–5 times) or frequently (more than 6 times) inside last 12 months. Almost one-third (29%) categorized their primary motivation for deviating with safety - e.g., improving safety margins/not decreasing safety margins. These examples meet the definition of SINC, as they are informed decisions to bypass or deviate from procedure, not due to negligence, convenience or habit, but with an understanding that strict compliance in that given situation would not result in the safest outcome.

In addition, 53% of these respondents reported they had encountered events, where strict procedure adherence in the given situation would have effectively reduced safety margins. This underlines the operational reality that procedures cannot, always, be perfectly aligned with

reality and in all situations meet every situational demands. This perspective was supported as all respondents (100%) indicated that flight crews should be granted operational flexibility to deviate from procedures when in the interest of safety. This clear consensus suggests that the professional pilot community, support and recognize the support kind of contextual judgment SINC represents. No respondents in the Occasional or Frequent options reported that effects of deviations led to a decrease in safety margin. Deviations were most frequently categorized with **no** impact or improved flight safety. This further support our idea that SINC is made with care and good situational awareness and fundamentally challenge the conventional belief that procedure adherence is always the safer option – and break with the good old mantra: Just follow procedure.

The survey in addition uncovered clear signs of underreporting. Only little more than one third of the respondents who qualified for utilizing SINC (35%) testified to ever filing Safety Reports or similar documentation related to their deviation. Majority either did not report (47%) or did not recall doing so (18%). A significant gap in formal safety reporting systems therefore arose: Safety-driven non-compliance appears to be systematically underreported, as we hypothesize. Reasons are not covered in the survey, but could possibly be fear of reprisal, normalization of deviations when they result in a successful outcome or not trusting the reporting system as to take notice or warrant any significant effect of the report. Such behaviour introduces significant organizational safety data-bias, where only the form of non-compliance that yield negative consequences tends to be documented, while beneficial non-compliance remains invisible!

Few participants offered examples to illustrate how their selective non-compliance enhanced safety outcomes. These included actions such as deviating from aircraft handling procedures (disconnecting auto-throttle/AFDS), modifying or altering sequence of configuration to reduce flight crew cognitive workload (omitting packs on take-off due to cabin overheating) and reprioritizing Before Taxi Procedures/Checklists before completing briefings to effectively manage critical time constraints. These examples reflected informed, risk assessed and situationally aware decisions that prioritized safety over procedural adherence/rigidity.

In its totality, the survey results demonstrate that SINC is a real life and identifiable behaviour within flight operations, used deliberately by a significant fraction of flight crews when standard procedures or policies are suboptimal for the situation at hand. Although not all non-compliance is safety-driven, the SINC-subgroup we have set out to identify and document appears real and frequent. It is reported as associated with contextual judgment and situation awareness and yield positive safety outcomes. Our data support the idea that SINC can function as a procedural adaption to protect and uphold flight safety and adaptation, rather than a safety hazard. Recognizing this distinction is critical for advancing flight safety culture and bolster reporting practices.

4. Implications

This dissertation set out to explore the underexamined territory of intentional non-compliance within aviation, particularly focusing on cases where deviation from standard operating procedures (SOPs) is deliberate, well-informed, and motivated by safety. Through the development and application of the concept Selective Intentional Non-Compliance (SINC), our study aimed to distinguish between reckless or habitual violations and those that represent a risk-based decision with appropriate adaptations of the procedures or policies. The results of

our survey suggest that SINC is not only a real-world phenomenon but may also constitute a valuable component of resilient, adaptive safety behaviour in commercial aviation.
Below we will discuss key themes deducted from our analysis.

4.1 Human Adaptability as a Safety Asset

The traditional safety paradigm, particularly as embodied in models such as James Reason's Swiss Cheese Model (Reason, 1990), places heavy emphasis on barriers, layers of defence, and compliance as the primary safeguards against error and harm. Within this model, deviations are viewed as latent failures or active errors that break down the protective layers and decreases the safety margin. However, newer frameworks like Safety-II (Hollnagel, 2015), resilience engineering, and systems thinking have significantly shifted the discourse. Rather than viewing humans as liabilities in need of constraint, these models recognize the human operator as a source of flexibility and problem-solving, especially in the face of uncertainty, ambiguity, and unforeseen events.

Our findings align closely with this contemporary safety perspective. Over half (53%) of the pilots who reported engaging in intentional non-compliance stated they had encountered situations where following established procedures would have reduced safety margins. This clearly supports the view that procedures, while essential, are not universally applicable in all operational contexts. As such, strict compliance is not always synonymous with safety, especially in complex and time-sensitive environments like commercial aviation.

In essence, human adaptability emerges as a compensatory mechanism. We need a human mind to bridge the inevitable gap between the procedural design and the messy reality of flight operations. The deliberate choice to deviate from SOPs in favour of a more contextually safe outcome represents a form of expert decision-making, not a breakdown of discipline. In this way, SINC should not be seen as a threat, but rather as a manifestation of skilled and experienced judgment.

Another human aspect to consider can be drawn by the study done by Degani and Wiener, 1993: Cockpit checklists: Concepts, Design, and use which highlight that checklists, though essential, are not infallible. They point out that "*the improper use, or the non-use, of the normal checklist by flight crews is often cited as a major contributing factor to aircraft accidents."* (Degani & Wiener, 1993) This acknowledgment suggests that rigid adherence to procedures without considering situational nuances can be detrimental. It implies that pilots often need to adapt procedures based on real-time assessments, aligning with the concept of SINC where deviations are made intentionally for safety reasons.

4.2 Normalization and Underreporting of Safety-Driven Deviations

One of the more striking findings from our study was the degree of underreporting associated with SINC. Among the pilots who reported engaging in deliberate deviations from procedures, only 35% had filed a safety report related to such an event. A significant majority either chose not to report or could not recall having done so. This supports our hypothesis that intentional non-compliance with a positive or neutral outcome is systematically underrepresented in organizational safety data.
This pattern has serious implications. If safety management systems are designed to capture only those events that result in failure or non-conformance, they will likely miss an entire

category of successful safety adaptations. This introduces a data bias: deviations that result in negative outcomes are investigated and documented, while those that enhance safety, and thereby reflect the expertise of the operator, remain invisible. Consequently, safety interventions may become biased toward preventing all deviations, instead of cultivating the capacity to distinguish between necessary and harmful ones.

The reasons for this underreporting are likely multifaceted. Organizational culture, fear of professional repercussions, peer pressure, lack of clarity around what constitutes reportable behaviour, and a belief that "no harm, no foul" behaviour does not merit documentation may all contribute. Particularly in environments where deviations are stigmatized, even when motivated by safety, pilots may opt to "fly under the radar," so to speak, rather than expose themselves to scrutiny. This bridges into a different discussion relating Just Culture and a non-punitive approach towards pilot error. A study published in the journal "Safety" by Siebericchs & Kluge, 2021 examined how a Just Culture influences pilots' voluntary reporting behaviour. The research found that when pilots perceive their organizational culture as just, they are more likely to report self-inflicted incidents, including those resulting from violations. This suggests that a Just Culture can mitigate underreporting by fostering an environment of trust and accountability (Siebericchs & Kluge, 2021). This calls for a reconsideration of safety reporting frameworks. Systems need to not only encourage but actively seek out and learn from instances of SINC, creating a feedback loop that enhances rather than inhibits adaptive capacity.

4.3 Intentionality, Not Habit: The Significance of Motivation

The data also revealed that not all intentional non-compliance is created equal. Among respondents who admitted to occasional or frequent deviations, only 29% were found to be motivated by safety, consistent with our definition of SINC. The remainder cited reasons such as efficiency, routine, commercial pressure, or habit. This underscores the necessity of drawing a clear distinction between safety-driven adaptation and convenience-based violation. The former represents a thoughtful, situationally aware risk assessment, whereas the latter may stem from erosion of standards, normalization of deviance or external pressures that lead to performance over safety - an often-misunderstood aim of helping the company, the passengers or greasing the operation but where safety margins are decreased. This difference is not merely semantic - it holds deep implications for how flight crews are trained, evaluated, and supported.

By defining and validating the category of SINC, we make room in the safety discourse for a third path: One that recognizes that non-compliance can be both intentional and beneficial under the right circumstances. This reframing is essential for shifting away from a binary compliance/non-compliance model and toward a more nuanced continuum of professional judgment.

4.4 Procedural Flexibility as a Competency

The most unanimous result in the survey was the 100% agreement among respondents that flight crews should have operational flexibility to deviate from procedures when it is perceived to enhance safety. This clear consensus points to a strong professional ethos within the pilot community: procedures are seen as guidance tools, not rigid mandates. The finding also affirms the importance of situational awareness, risk assessment, and decision-making autonomy as core pilot competencies. This belief echoes Barshi et al. (2016), who argue in NASA's

procedural design framework that checklists and SOPs should be designed with flexibility and adaptability in mind. Procedures should support good decision-making and not replace it. The practical experience from the real world of aviation seems to confirm that contextual judgment is not only necessary but expected, even if current reporting and accountability frameworks do not always reflect this. By integrating procedural flexibility into training curriculums, performance evaluations, and safety management systems, the industry can better align its practices with the realities of modern flight operations. Recognizing that expert pilots deviate for the right reasons is key to strengthening and not weakening of the safety culture.

4.5 Implications for Safety Culture, Reporting, and Training

The broader implication of this study is that flight safety can benefit from embracing a more realistic and adaptive view of pilot behaviour. Encouraging open discussion of SINC, incorporating it into case studies, and debriefing real-life events could help normalize these practices without promoting reckless behaviour. Furthermore, SMS should be re-evaluated to ensure that reporting mechanisms are perceived as fair, confidential, and oriented toward learning, there is a strong need of a just culture and non-punitive approach. Otherwise, valuable insights will continue to go unreported, reducing the organization's capacity to evolve and adapt.

In training environments, introducing simulation scenarios where deviation is not only allowed but carefully encouraged (when justified), could help develop and reinforce the skillset required for SINC. This supports the development of "adaptive capacity", a key tenet of resilience engineering.

4.6 Selective Intentional Non-Compliance and Normalization of Deviance

The fundamental distinction between selective intentional non-compliance (SINC) and its habitual and repetitive counterpart Pilot Intentional Non-Compliance (PINC) is found in the motivation and frequency of deviation (Huntzinger, 2006). Habitual or reoccurring intentional non-compliance is a strong precursor for normalization of deviance as repetition and time will manifest a deviation as an alternate or optional path in parallel to the established procedure, without formal consent of responsible stakeholders. (Hester, 2023) It is therefore critical, to avoid a situationally determined decision to deviate from procedure for safety turning into normalized behaviour, that such deviations are flagged, recorded and sought understood.

Selective intentional non-compliance demonstrates and document first-hand experiences of systemic inadequacy that must be known to organizations, as only known and understood phenomena can be acted upon. Once selective intentional non-compliance becomes, repetitive non-compliance for safety, it is a malign symptom for one or more underpinning internal or external root causes. SINC is a reactive response to a perceived reduction in safety, but can be prevented with proactive mitigation strategies by addressing the essence of the situational and contextual problem, i.e. by adapting procedures, modulating commercial pressure, etc. While SINC involves deliberate deviations aimed at enhancing safety, Hester warns of the dangers when such deviations become routine without proper oversight (Hester, 2023). It underscores the importance of organizational vigilance to ensure that adaptive behaviours do not erode safety standards over time. This bridges into the concept on human adaptability, emphasizing the need for balance between flexibility and adherence to safety protocols.

Organizational or professional culture, unclear leadership, working environment and commercial pressure are just a few of the contributory factors that can turn selective intentional non-compliance in a repetitive behaviour that in turn will dilute the risk-assessment associated and wash away the selective condition statement of intentional non-compliance by pattern matching and recognizing a novel or dangerous situation. Exceeding a speed limit first time in a car would normally yield a sound risk assessment but in time and with repetition mandate less and less risk assessment as the identical and reoccurring situation is perceived less dangerous (lower risk) and a known solution or behaviour tolerated or even expanded on. It is, i.e., easier to gradually exceed speed limits more and more if no negative consequences are experienced from it. It is important though to understand the reasons for exceeding speed limits, or intentionally violating rules, to effectively mitigate these. There can be a significant time lag between the start of deviant behaviour and the inevitable consequences (Hoffman, 2024). Instead of the individual selectively and on a situational basis deviate from a rule, there may be systemic issues that kickstart the need to do so, and these should be understood and adapted to on an organizational level rather on an individual. Therefore, reporting of selective intentional non-compliance, an open and respectful dialogue and understanding of this on both a peer, leadership, and organizational level is the key to effectively adapt to a dynamic world. Instead of the individual selectively and on a situational basis deviate from a rule, there may be systemic issues that kickstart the need to do so, and these should be understood and adapted to on an organizational level rather on an individual. Therefore, reporting of selective intentional non-compliance, an open and respectful dialogue and understanding of this on both a peer, leadership, and organizational level is the key to effectively adapt to a dynamic world.

4.7 Limitations and Future Research Directions

Despite the strong qualitative and quantitative support for our hypothesis, this study is not without limitations. First, the sample size (N = 39) limits generalizability. Although the responses offered meaningful insights, a larger and more diverse sample across multiple operators and regions would yield greater statistical power.

Second, the study relied on self-reported data, which introduces inherent biases. Participants may have unintentionally misrepresented their behaviour due to memory limitations, social desirability, or interpretation of the questions. There is also a risk of confirmation bias, where respondents with more reflective or critical safety mindsets were more inclined to participate. Moreover, while the study shows correlation between SINC and perceived improvements in safety, it cannot establish causal relationships. To advance this field, future studies could employ mixed-methods research combining surveys with simulator studies, ethnographic observation, and post-deviation interviews. Such approaches could validate the concept of SINC with greater fidelity and shed light on the specific cognitive and environmental triggers that lead to safety-driven deviations.

5. Conclusion

The conclusion of our dissertation adds interesting nuances to the understanding and assumption that procedural compliance is always synonymous with safety in aviation operations. Through our conceptual framework of Selective Intentional Non-Compliance

(SINC) and our harvest and investigation of real world-data from active flight crews, we demonstrated that pilots often make conscious, deliberate, well-managed decisions on when and how to deviate, in situations where procedures when rigidly followed could, in the flight crews' assessment, weaken or compromise more than enhance flight safety.

Our findings show that procedural non-compliance is not inherently bad nor negligent. Instead, with sound risk assessment, situational awareness, and well applied operational experience, selective non-compliance proves as an important means of dynamic or adaptive safety behaviour. That nearly one-third of deviations among respondents were motivated by safety concerns underpin our argument that the aviation industry must differentiate between habit-based, efficiency-driven violations and safety-driven deviations when evaluating pilot behaviour and organizational safety culture. In addition, the discovered underreporting of positive deviations for safety uncovered in our survey suggests a significant blind angle in how the safety management systems harvest and synthesize operational data. If procedural deviations that successfully protect or improve margins of safety are systematically omitted from the organizations reporting systems, organizational learning is not capitalizing on full potential, and safety interventions result in, though well-intentioned, badly designed safety solutions. Consequentially, it is critical that organizations in aviation develop and cultivate safety cultures to not only accept and tolerate, but actively encourage and endorse, the understanding of SINC as a positive safety behaviour. Such approach would improve feedback loops, cultivate and develop procedures better suited an operational reality and finally bolster the organizations systemic resilience.

The undisputed and unanimous acknowledgement of the respondents, that procedural flexibility is safety critical and should be applied when so required underline the professional pilots' ethos: That pilots see procedures as guidance that should be intelligently applied, and not as rigid commands to be blindly followed. Evaluation and training should therefore be positioned accordingly, to emphasise and cultivate professional judgement, adaptive decision-making processes and critical thinking. Understanding when and how to apply procedural flexibility is a pilot core competency and must reflect the complexities of the aviation worlds dynamic environment in support of development of robust safety systems. Our dissertation does not advocate for mismanaged or unchecked deviations from rules, policies, procedures or standards, and nor does it dilute the philosophy of procedures as safe grounds for safety positive operations. Instead, it underlines the need for sound balancing of procedure compliance with human understanding and adaptability. Policies and procedures must stand as the basis, but not as a mandatory course of action when in conflict with flight safety a dynamic and ever-changing context.

To conclude, our study finds that the aviation industry's safety philosophy could benefit from a more nuanced and flexible view on compliance. A view that endorses, understand and acknowledge that selective intentional non-compliance, when founded on sound and robust judgment with a clear aim on safety, is not a weakness, but a vital driver for safety and it makes a strong argument on why a human should always be present behind the controls of commercial aircraft.

6. References

Agur, P. V. (2007). Discipline as Antidote. *AerosafetyWortld*, 35-38. Retrieved 04 12, 2025, from https://flightsafety.org/wp-content/uploads/2016/12/asw_feb07_p35-38.pdf

Barbagallo, J. (2017). *Standard Operating Procedures and Pilot Monitoring Duties for Flight Deck Crewmembers.* Transportation, U.S. Department of. Federal Aviation Administration. Retrieved 03 02, 2025, from https://www.faa.gov/documentLibrary/media/Advisory_Circular/AC_120-71B.pdf

Barshi, I., Mauro, R., Degani, A., & Loukopoulou, L. (2016, October). *Designing Flightdeck Procedures.* Moffett ield, California: NASA. Retrieved 05 01, 2025, from https://humansystems.arc.nasa.gov/publications/Barshi_Procedure_Checklist_Design_NASA_TM_2016.pdf

Bryman, A., Clark, T., Foster, L., & Sloan, L. (2021). *Bryman's Social Research Methods* (5 ed.). Oxford: Oxford University Press. Retrieved 05 15, 2025, from https://www.google.dk/books/edition/Bryman_s_Social_Research_Methods/QJg5EAAAQBAJ?hl=en&gbpv=1&pg=PR1&printsec=frontcover

Bureau of Air Safety Investigation, A. (1997). *Regional Airline Safety Study.* Department of Transport and Regional Services. Retrieved 03 18, 2025, from https://www.atsb.gov.au/sites/default/files/media/30782/sir199905_001.pdf

Creswell, J. W., & Creswell, J. D. (2014). *Research Design - Qualitative, Quantitative, and Mixed Methods Approaches* (5 ed.). Thousand Oaks, California, US: SAGE Publications. Retrieved 05 21, 2025, from https://spada.uns.ac.id/pluginfile.php/510378/mod_resource/content/1/creswell.pdf

Degani, A., & Wiener, E. L. (1993). *COCKPIT CHECKLISTS: CONCEPTS, DESIGN, AND USE.* San Jose. Retrieved 05 17, 2025, from https://s3.amazonaws.com/kajabi-storefronts-production/sites/3839/themes/2022276/downloads/VauqPYTC8jFaUycRTgrf_Degani_-_Human_Factors_The_Journal_of_the_Human_Factor.pdf

Dekker, S. (2001). Failure to adapt or adaptations that fail: contrasting models on. *Applied Errgonomics*. Retrieved 04 01, 2025, from https://www.sciencedirect.com/science/article/pii/S0003687003000310

Giles, C. N. (2013). Modern Airline Pilots9 Quandary: Standard Operating Procedures - to Comply or Not to Comply. *Journal of Aviation Technology and Engineering*, 2-12. Retrieved 05 12, 2025, from https://docs.lib.purdue.edu/cgi/viewcontent.cgi?article=1070&context=jate

Hester, S. M. (2023). Normalization of Deviance: Why Accidents Are Not Always Accidental. *IEEE IAS Electrical Safety Workshop (ESW)*, 158-164. Retrieved 05 01, 2025, from https://electricalsafetyworkshop.org/wp-content/uploads/sites/255/ESW-2023-29.pdf?fbclid=IwY2xjawKGLHtleHRuA2FlbQIxMABicmlkETBVaWhOMTVUckk0aUw4aVNRAR7mm0dgkz9SSJe9NB6T4AOgEMsjAi6440pMvw77PAabrp39hQfxHVwgV3CE_Q_aem_rkwO2WD3UcI-TrQZbqYb6A

Hoffman, R. (2024). Normalization of Deviance: The Pathway to Disaster. *Becht - Good Better Becht*. Retrieved from https://becht.com-blog/entry/normalization-of-deviance-the-pathway-to-disaster-2

Hollnagel, E. (2015). *Safety-I and Safety-II, the past and future of safety management.* Dorchester: Ashgate Publishing Limited. doi:10.1007/s10111-015-0345-z

Huntzinger, D. (2006, January). In the PINC. *Business & Commercial Aviation*, 42-45. Retrieved 04 15, 2025, from https://d1wqtxts1xzle7.cloudfront.net/50482498/BCA_PINC-libre.pdf?1479835241=&response-content-disposition=inline%3B+filename%3DProcedural_intentional_Non_Compliance.pdf&Expires=1747915661&Signature=Cl~p8PmZ7YafCRiP9gGRmCqhKNUFFr92HX~XyHE~31~S5TYvwkg1xbzW

IATA. (2023). *IATA Annual Safety Report.* Montreal: IATA. Retrieved 05 15, 2025, from https://www.iata.org/contentassets/a8e49941e8824a058fee3f5ae0c005d9/safety-report-executive-and-safety-overview-2023.pdf

Kahneman, D. (2013). *Thinking, fast and slow.* MacMillan: Farrar, Straus and Giroux. Retrieved 04 25, 2025, from https://www.saxo.com/dk/thinking-fast-and-slow_daniel-

kahneman_paperback_9780374533557?srsltid=AfmBOoqzDm9NA-Mw4Uien-6BCNL4s39q-noMpI2wp8k8N9Od-r-xhG6-

Key, K. N., Schroeder, D. J., Durham, J. D., Choi, I., Hu, P. T., & Avers, K. E. (2022). *Procedural Noncompliance in Aviation Maintenance: A Multi-Level Review of Contributing Factors and Corresponding.* Washington: Federal Aviation Administration. Retrieved 05 01, 2025, from https://www.faa.gov/sites/faa.gov/files/data_research/research/med_humanfacs/oamtechreports/Procedural_Noncompliance_in_Aviation_Maintenance.pdf

Klein, G. A. (1993). A Recognition-Primed Decision (RPD) Model of Rapid Decision Making. In G. A. Klein, *Decision Making in Action* (pp. 138-147). Retrieved from https://www.researchgate.net/publication/235418838_A_Recognition_Primed_Decision_RPD_Model_of_Rapid_Decision_Making

Korhonen, J. (2023). *Fatigue Reporting Behaviour Within a Regional Airline.* Haaga-Helia: Haaga-Helia University of Applied Sciences. Retrieved 05 15, 2025, from https://www.theseus.fi/bitstream/handle/10024/815352/Korhonen_Johannes.pdf?sequence=2&isAllowed=y

Rankin, W., Hibit, R., Allen, J., & Sargent, R. (2000). Development and evaluation of the Maintenance Error. *Industrial Ergonomics, 26*(1), 261-276. Retrieved 05 15, 2025, from http://pages.suddenlink.net/reed/rankin.pdf

Reason, J. (1990). *Human Error.* Cambridge: The Press Syndicate of the University of Cambridge.

Siebericchs, & Kluge. (2021, 05 12). How Just Culture and Personal Goals Moderate the Positive Relation between Commercial Pilots' Safety Citizenship Behavior and Voluntary Incident Reporting. *Safety and Occupational Goal Conflicts: Cause and Effect of Work-Safety Tension on Safety-Related Risky Decision Making), 1*, 4-6. Retrieved 05 10, 2025, from https://www.mdpi.com/2313-576X/7/3/59?

Appendix 1 – Literature Search

Structured Literature Search Google Scholar

	Search/Subject Word	Hits	Read Titles	Read Abstracts	Read Articles	Selected Articles

S1	Intentional Non-Compliance	69.200	60	12	-	-
S2	S1 + Aviation	6.230	20	20	8	3
S3	S1 + Selective	19.800	40	11	3	1
S4	S3 + Aviation	9.010	40	10	2	1

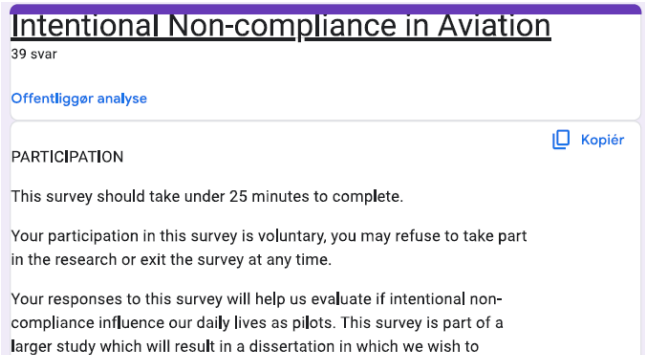
During the searches conducted on Google Scholar, a number of articles of interest were identified. These initial findings often served as gateways to a broader network of additional relevant literature. In many cases, reading one article would naturally lead to the discovery of another through its reference list, creating a kind of spiderweb effect. This interconnectedness allowed for a deeper and more expansive exploration of the topic, as each article often pointed toward further sources that were both interesting and pertinent to the research.

Structured Literature Search LubSearch

	Search/Subject Word	Hits	Read Titles	Read Abstracts	Read Articles	Selected Articles
S1	Intentional Non-Compliance	235	10	-	-	-
S2	S1 + Aviation	4	4	4	4	1
S3	S1 + Selective	0	-	-	-	-

The search on LubSearch yielded less results, but we did get a single great hit with a very relevant article by Carrie N. Giles.

Appendix 2 – Survey Results


Intentional Non-compliance in Aviation

39 svar

Offentliggør analyse

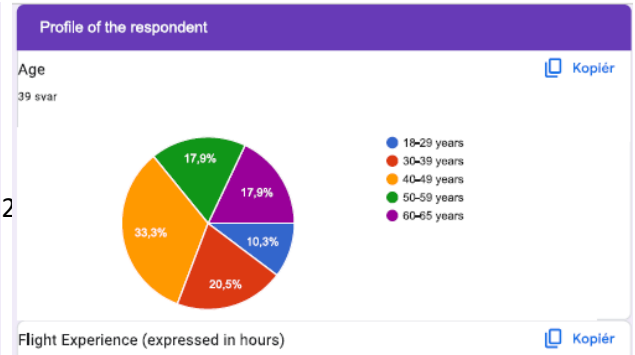
Kopiér

PARTICIPATION

This survey should take under 25 minutes to complete.

Your participation in this survey is voluntary, you may refuse to take part in the research or exit the survey at any time.

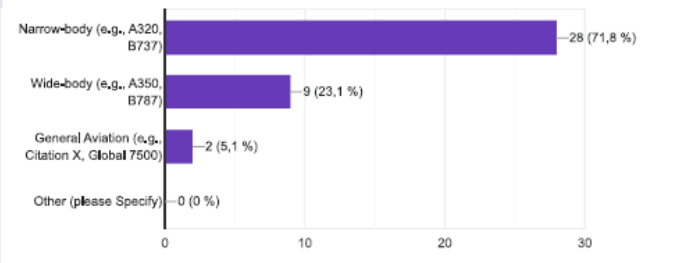
Your responses to this survey will help us evaluate if intentional non-compliance influence our daily lives as pilots. This survey is part of a larger study which will result in a dissertation in which we wish to



Type of Aircraft

Kopiér

39 svar



Average Sector Length

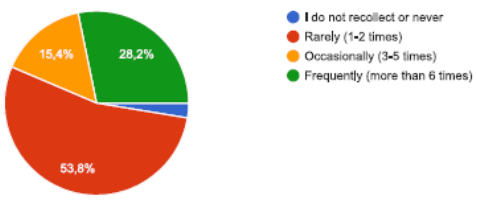
Kopiér

39 svar

1. In the past 12 months, how often have you deviated from a policy or procedure in any phase of flight (from check-in to check-out)?

Kopiér

39 svar



2. What were the main *reason*(s) for your procedural deviation(s)?

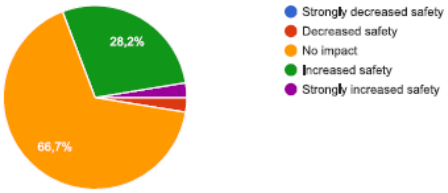
Kopiér

(Select all that apply)

Kopiér

4. In your opinion, how did your procedural deviations impact flight safety margins?

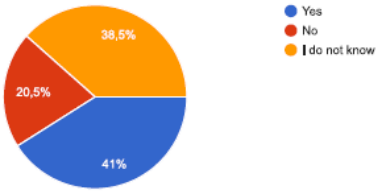
39 svar



Kopiér

5. Have you ever been in a situation where following procedures would have decreased safety margins?

39 svar



6. If yes, what did you do in that situation, and how did it impact flight safety?

(Leave blank, if you did not know or answered no in previous)

12 svar

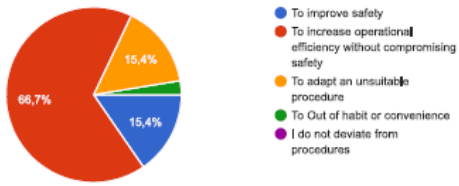
Disconnecting ATHR helped to avoid hard landing
Temp and wind corr. for RNP AR approach FAF
Commitment to land even if not stabelized due wind as the go around sector had cb build up
Flyging out of trondheim in windy conditions (varying wing at different levels), i climbed with around 160-170 kts, which is more than V2+15. I did this to have a lot of speed margin, in case of windshear. I increased the speed, only when i knew altitude was enough to have terrain clearance even if one engine failed, thus ensuring flight safety in all "worst case" scenarios. The "worst case" scenarios are the ones i'm always thinking about, not following V2+15 just

Differentiating Selective from Intentional Non-Compliance

7. If you have ever deviated from a policy or procedure, what was or were your primary aim(s)?

(You may select one of more)

39 svar



Kopiér

10. If yes in question 10, what was the outcome of the report?

(You may specify in plain text or leave blank)

9 svar

Some reports were added to statistics, some reports contributed to revised procedures and some reports did not result in any outcome.
Acknowledged for further procedure revision
Fatigue reports
Airline responded that it was to expansive to change procedure.
Answer was "good decision " thx
No action taken.
Highlight of the procedure and the change
More time at check-in. Specifically flying to Firenze in Italy.
Positive feedback from the company

11. Do you have an example from your career, where a deviation from procedures