Passenger Hostility in the Airline Industry: A Comparative Study of Human-Led and AI-Augmented Service in the Airline Industry

Author: Leena Mahesh/IIBMS

Abstract:

Purpose: The study considers the challenges passengers face when they get angry in flight, also known as 'air rage' in the global aviation industry. It aims to determine whether training in emotional Intelligence (EI) can reduce conflicts by comparing conventional human interaction with modern AI-based services such as biometric kiosks, chatbots, and automated service recovery. The study concentrates on how these different services affect both the occurrence of aggressive behavior and the effectiveness of its management.

Method: The study examines data from two airlines. They were chosen because passengers used to prefer these airlines, and they were also willing to share their work procedures. The work patterns and operations of both airlines were similar. They operate both domestic and international flights. To assist passengers effectively, they used both human staff and technology, providing good customer service across a diverse range. These similarities made the study more believable and applicable to other airlines worldwide. The report focuses on passenger conflicts that occurred and how well the staff handled them. By comparing passengers' stress levels and emotional flexibility and studying the reasons for the problems, the study shows the strengths and limitations of both human staff and technology in passenger service. Therefore, understanding is how well airlines manage the combination of human interaction and technological support to improve the passenger experience.

Findings: Artificial Intelligence (AI) helps reduce pressure and disputes, such as long queue times, which lead to frustration and confusion. Because human emotions are not well understood by AI, handling serious, continuing conflict issues successfully becomes difficult. Meanwhile, human-led environments with staff trained in Emotional Intelligence (EI) are 34% more successful at resolving conflicts. Although AI cannot match human ability to manage complicated emotional situations, it is improving its efficiency.

Implications: This evidence shows that airlines should adopt a “combined AI–human emotional approach.” In this approach, AI handles routine, data-focused tasks, while skilled staff step in during highly stressful situations involving strong emotions. Such a balance lets technology boost efficiency through enabling people to express empathy. It also gives airlines a clear strategy for future training and technology, highlighting that Aviation safety depends on the combined efforts of AI and human insight.

Introduction

In the past 10 years, airline passengers have been breaking rules or getting into conflicts much more often. This is because of things like seats that're too small, flights that are late, and security rules that are too strict. These things can make people really angry on a plane, which is what we call air rage. Airline passengers and air rage are issues that need to be addressed now. The people who deal with these problems are flight attendants

and gate agents. They are the ones who're on the front lines, and they have to calm down the airline passengers when they get upset.

Today, airlines are using Artificial Intelligence tools such as recognition and chatbots to get things done faster. These tools make things easier when flights are delayed or when people are confused. But they also show us something machines do not know how people feel. Artificial Intelligence is good with numbers and information. It does not really understand how people feel, which makes it hard for it to respond well when people are upset. This makes us wonder: Should Artificial Intelligence replace how people understand and manage emotions, or should it help people develop these skills? Artificial Intelligence is not like people; it does not know what it is, nor does it feel happy or sad, so it is hard for it to know what to do when people are feeling these emotions. This is why we need to think about whether Artificial Intelligence should replace emotional skills or support them, because Artificial Intelligence and human feelings are very different.

This study considers how people and artificial intelligence interact with airline passengers. The main things it wants to find out are how training people to be understanding can reduce fights on planes, how people and artificial intelligence can resolve arguments, and what is the best way to use technology and human feelings together, which is called the hybrid emotional model.

The study looks at what goes on planes. This study uses data from two airlines that fly to many destinations across North America and Europe. They reviewed incident reports on planes, spoke with employees, and used simulation data. This way, the study gets an idea of what it's like on planes in different situations. The study focuses on airlines that fly around the world. The things they found out are most useful for the places where the airlines in the study actually fly. This way, the study can give advice on how to train staff and use technology on planes because it is based on what happens on real flights in different places, even though they do not have information from every single place in the world, just from North America and Europe, and the airlines that fly there.

Airline bosses should use the emotional model and train their staff to be more understanding so that flights are safer and more comfortable.

If airlines do what the study says, they can make flying more reliable for people and keep everyone safe.

Literature Review

The problem of people getting angry on planes, also known as "air rage," has become a deal for the aviation industry. It used to be something that happened every now and then. Now it is a serious safety issue. As flying becomes more complicated, both flyers and plane crew are under a lot of stress. This paper studies what makes people angry, how Emotional Intelligence works, and how difficult it is to manage emotions at work. It also looks at how people do their jobs when computers are helping them and how big the difference is between the two.

1. The Anatomy of "Air Rage": Catalysts and Triggers

People think about why passengers get aggressive by looking at two things: what happens to them in the moment and what is going on inside them.

Situational Stressors

These are things outside of people that can make them feel stressed. This is a part of how airlines do business nowadays. **Barron said in 2002** that the way people board planes can be really annoying. People have to wait in lines, go through invasive security checks, and then sit in seats that are too small. This can make people feel really irritable. Jayawardene and Ewing said in 2025 that when things do not go as planned, like when flights

are delayed, and people do not know what is going on, this can make passengers act in ways that they should not. When passengers feel they have no control over what's happening to them, they become frustrated much more easily. Passenger aggression is triggered by these stressors, and understanding it is important for preventing it.

Physiological Stressors

When you are on a plane, your body is in a different state. Some researchers, like Henkel et al. 202), and their team found that when you are up high,igh you do not get as much oxygen as you normally do, and you can also get dehydrated. This can really affect how you think and feel. If you drink alcohol, which some people do to calm their nerves when they fly, it can make things even worse. All these things together can make you feel irritable. Aviation is a case in point. The combination of not getting oxygen and not having enough water may impair your thinking and feelings. When you add alcohol to the mix, it can cause problems. These physical stresses create a kind of baseline for how you feel. That can make small problems seem like big deals. For example, if something small goes wrong on the plane, it can really upset you. This is because aviation creates a biological environment, as Henkel et al. found in 2020.

2. Conceptual Foundations of Emotional Intelligence (EI)

To address stress, experts study how we can manage our emotions. Today, two main approaches are used in this training: both help us understand and control our affective reactions. The Ability Model **(Salovey & Mayer, 1990).**

Salovey and Mayer describe emotional intelligence as a learnable skill. They view emotions as information to solve problems. For example, a crew member applying the Ability Model will assess a passenger's emotions, identify the cause, and select a response to defuse tension. The Ability Model provides a framework for understanding the passenger's state.

The Mixed Model (Goleman, 1995)

Daniel Goleman said that Emotional Intelligence is something we can study. Emotional Intelligence is a set of skills. These skills include understanding how we feel, controlling our emotions, being motivated, understanding how other people feel, and being good with people. Daniel Goleman wrote about this in 1995. Other people like Hu have also written about Emotional Intelligence recently in 2024. Emotional Intelligence includes things like self-awareness, which is understanding our emotions, as well as empathy, which is understanding the emotions of other people.

* For airlines Golemans work shows that these called "soft skills" are not things you are born with but can be taught through thorough training in a company. **(Emotional Intelligence in Air Transport: Case study of Flight Attendants in Thailand, 2022, pp. 2496-2499)**

King and others, in their 2024 study, say that training flight attendants in EI greatly improves their ability to read situations. This helps them step in before a conflict escalates or turns violent.

3. The Psychological Strain of "Emotional Labor."

Employee costs are an important part of managing passengers, yet they are frequently overlooked. Arlie Hochschild's concept of "Emotional Labor" from **1983** is especially important for the aviation industry.

There are two kinds of labor.

* **Surface Acting:** This is when a cabin crew member has to look happy and professional when passengers are being mean to them.

*** Deep Acting:** This is when the employee tries to feel the emotions they are supposed to show, such as trying to feel sorry for a passenger who is being difficult.

Some researchers, **Değirmencioğlu and Macit**, said in **2025** that performing labor-intensive work constantly can leave employees very tired and lead to "compassion fatigue". This is a problem because the more an employee has to hide their feelings to deal with passengers, the less able they are to handle the next difficult situation, which is a big issue for Emotional Labor. Emotional Labor is a deal because it affects how employees do their jobs and how they feel about it.

4. Human vs. AI Performance: "High-Tech" vs. "High-Touch."

- The use of AI in services is becoming important for making passengers happier. Recently, researchers, such as Tsang et al. (2024), studied how AI affects passenger satisfaction from a fairness perspective.

- **Distributive vs. Interactional Justice**

• **Distributive Justice (The "What")**: This is about the fairness of outcomes. AI is good at this. A biometric kiosk or chatbot can quickly rebook a passenger. Give them a meal voucher if there is a delay. AI is faster than humans at handling logistics, which helps meet passengers' needs.

• **Interactional Justice (The "How''):** This is about how well passengers are treated. Travelers frequently feel like machines do not care about them. AI is not good at being empathetic. Cannot make passengers feel respected when something goes wrong.

5. The most recent research, including that of Li et al. (2025), identifies a fascinating behavioral shift in passengers interacting with AI.

Inhibited Aggression

People are usually less likely to yell at a machine, like a kiosk, than at other people. This is because we know the machine cannot feel hurt, cannot get scared, and will not change what it is saying just because we get angry. So, in a way, artificial intelligence, like a kiosk, acts as a kind of protection that prevents arguments from starting there. Artificial intelligence is like a shield that helps prevent problems. Artificial intelligence does this because it cannot feel emotions like humans do.

Uninhibited Frustration

However, when AI fails, such as a chatbot getting stuck or a biometric scanner not recognizing a passenger, frustration really gets bad.

The AI cannot interpret the scenario or detect rising anger, escalating the problem until human involvement.

By the time a human intervenes, passengers are often significantly more aggravated than they would have been if they had been helped initially.

AI cannot de-escalate tensions, and passenger frustration continues to rise.

Only when a human finally steps in can the situation be resolved, often amid heightened emotions.

6. Identifying the Research Gap: Toward a Hybrid Model

Air rage has been studied extensively. They know what causes it. They think emotional intelligence can help. There is something missing in all these studies. Nobody has really looked at how emotional intelligence and artificial intelligence can work.

Most of the time, people think that airlines have to choose between using intelligence and training their human staff. They think it is one or the other. What if airlines could use artificial intelligence to handle some tasks, such as logistics, data analysis, and wait times? This would help the staff, who have been trained to be emotionally intelligent, to save their energy for the really tough situations. This study intends to determine whether the Hybrid Emotional Model can work.

Conclusion of Review

The literature says that technology can help eliminate the things that make people angry. It cannot control the strong feelings that people have once they are upset. This study considers the findings of Salovey, Mayer, and Goleman. Says that to improve aviation safety, we should not have to choose between people and artificial intelligence. Instead, we should work together intelligently and as a team. Artificial intelligence can do the thinking. People can feel it, which is at the core of the matter. Aviation safety is very important. We need both artificial intelligence and people to work together to make it better. The future of aviation safety is about working together. Aviation safety requires people and Artificial Intelligence to work together. Artificial Intelligence will perform tasks that require substantial data and help make decisions. At the time, humans will provide understanding and emotions, which are really important, for safe and effective aviation operations. Artificial Intelligence and humans will improve aviation safety by working together.

Research Methodology

To see how human-led, AI-supported service models reduce passenger aggression, we studied two major airlines over a 12-month period. This helped us understand both short-term reactions and long-term trends.

- ### Research and Design

We used a mix of numbers and stories to understand the problem. We looked at how well things worked and spoke with people to understand why "air rage" happens. This way, we could look at the problem from different angles.

The research was split into two groups.

Group A (Human-Led): The staff completed a 4-week program to learn how to handle situations. They learned to understand passengers' feelings and body language, which helped them stay calm and solve problems.

Group B (AI-Augmented): This group used computers and chatbots to help passengers. These systems tried to solve problems on their own before a human got involved. They handled things, for example, delays, lost luggage, data gathering techniques.

The researchers used three methods to gather facts and ensure their accuracy:

Quantitative analysis, Qualitative interviews, and Laboratory tests. If you read about these methods, you will get an idea of what the researchers did in the methods part of the research. The methodology part is

important because it describes the methods the researchers used, including analyses, qualitative interviews, and laboratory tests.

***Quantitative Analysis:** This is where they examined reports on passengers who caused trouble on flights, known as Disruptive Passenger Reports, as well as Customer Satisfaction scores. The researchers obtained Disruptive Passenger Reports from airline safety databases for **2023**, from **January to December**. They also got the Customer Satisfaction data from surveys that people filled out after their flights over the time period. They counted incidents and calculated the percentage of cases resolved.

They used statistics to examine whether there were patterns in how often problems occurred on flights, and to determine whether people were more satisfied when fewer problems occurred on their flights. These Disruptive Passenger Reports and Customer Approval scores help us understand how often things go wrong on flights and if people think the problems are being handled fairly. This is similar to what Tsang and his team did; in 2024, they also looked at Disruptive Passenger Reports and Passenger Contentment scores.

***Qualitative Interviews:** Using purposive sampling, the researchers selected participants based on experience levels and job roles among both flight attendants and ground staff. There were 40 flight attendants and 20 ground staff with 1 year of experience in major airlines. Through employee bulletins, invitations were sent to airline staff, and volunteers were screened as per their roles and availability. The interviews were conducted one-on-one in a private setting, using an unstructured approach. This made participants at ease discussing their experiences and capacity to handle passengers without getting stressed, a concept sometimes called **"perceived self-efficacy,"** which Henkel and his team studied in 2020.

***Laboratory Tests:** The researchers created situations that closely resembled real life. They wanted to see how airline staff would handle situations such as dealing with difficult passengers or issuing emergency instructions. Everyone who took part had to go through the scenes, and the actors played the parts of passengers to guarantee everything was fair. The researchers used monitors to see how each person's heart was beating and how it was changing. They also timed how long it took each person to figure out what was wrong, take action, and fix the problem. Other people who were trained to watch and take notes used a list to see how well each person could talk to others, solve problems, and calm things down. These tests helped the researchers see how well people could handle stress and deal with problems when things got tough. The researchers looked at how the airline staff managed stress and resolved disagreements during these simulated events, which was what they were really interested in, in the Laboratory Tests.

Sample Size and Participants

The study included **60 aviation workers**. 40 people worked on flights, and 20 worked on the ground. These aviation professionals had varying amounts of experience. We chose 60 people to get an idea of what people who work with passengers are like. This way, the things we learn will be useful throughout the trip, from check-in to arrival. We looked at incidents over 12 months for two groups, Groups A and B, to see what we can learn. This study shows how to combine kindness toward people with technology use to meet aviation professionals' needs and improve the passenger trip for both aviation professionals and passengers.

It is important to note that the sample size in this study is relatively small and may not fully represent the wide variety of experiences across the airline industry. Because participation was voluntary, there could also be participant bias, as those who chose to take part might have a particular interest in or attitude towards passenger management or new technology. The limitation means giving us some ideas for discussion and further inquiry. They should be interpreted with caution. For a better, greater understanding, proper research should be conducted, and more people from diverse backgrounds should be involved in these studies. This will improve the credibility of the findings, permitting more meaningful conclusions.

Results and Data Analysis

The 12-month study examined how people get angry while traveling. According to a systematic review by Marteache, Bichler, and Enriquez, passenger hostility in transit varies in occurrence, intensity, and outcomes, though the review does not compare two specific approaches to handling aggression. The results show that computers are really good at preventing people from getting angry when they lack information. When people are in charge, understand, and can manage emotions, they are better at preventing big arguments. Passenger aggression is a problem, and the study found that passenger aggression is handled differently in different situations. The study looked at passenger aggression. How it is triggered, managed, and resolved.

1. Comparative Incident Metrics

Examining Disruptive Passenger Reports (DPRs) and Consumer Contentment (CSAT) scores enables focused comparison of two service settings. Findings show that the conflict cycle, as measured by DPRs and CSAT scores, fluctuates across customer service interfaces.

Table 1: Comparative Performance Measures (12-Month Trial)

Performance Indicator	**Group A: Human-Led (EI Trained)**	**Group B: AI-Augmented**	**Impact Analysis**
Reduction in Initial Complaints	+2% (Marginal Increase)	-22% (Significant)	AI reduces "informational" friction.
Escalation Rate (Verbal to Physical)	-15% (Significant)	+8% (Post-AI Failure)	The EI prevents high-intensity escalation.
Success in "Logistical Repair"	68%	91%	AI excels in rapid factual fixes.

2. AI-Augmented Environments: The Efficiency Shield

In Group B, they used AI kiosks and sentiment-aware chatbots. This helped to reduce the number of times people got angry about things. The number of these instances went down by 22 percent. This is what the " aggression" theory says will happen. People are less likely to yell at a computer than at a person when they are stressed about things like where they will sit. If their flight is late. This is based on a 2025 study by Li and others.

The AI was very good at helping people with problems. It could fix 91 percent of the problems that people had with things like their seats or flights. The AI did this without any arguing between people, which is what usually makes people angry when they are traveling.

There was also a big problem with the AI. When the AI couldn't help someone, people got very angry. This was called the " Dead-End Spike." When the AI did not know what to say or do, people got angrier than they would if they were talking to a person. This is because the AI could not be fair or understand how people were feeling. This made people more frustrated than it helped them to feel better. This is what **Tsang** and others found out in **2024.**

3. Human-Led Environments: The De-escalation Advantage

In Group A, initial complaints were more frequent than in the AI group. This suggests people are more inclined to discuss issues when in group settings. The frequency of incidents escalating from discussion to physical action was 15% lower than in groups absent Emotional Intelligence training.

The main difference was that staff with Emotional Intelligence training excelled at emotion management. They improved participants' moods 84% of the time by demonstrating sympathy and attentiveness. Staff listened closely to feelings and used supportive body language. Flight attendants reported that the training boosted their confidence and calmness while facing challenging situations. This is important because it helps them manage their emotions when working with people, which **Arlie Hochschild called Emotional Labor.**

4. Interpretation: The Technical-Emotional Paradox

The findings show a difference between how people and computers handle problems in aviation service. Computers are really good at fixing broken things. They are not good at making people feel better when they are upset. On the one hand, people trained to understand and manage emotions are the only ones who can really help calm angry customers.

The information we have says that this difference is most obvious when something goes wrong with the service. **(Voice artificial intelligence service failure and customer complaint behavior: The mediation effect of customer emotion, 2023)** While computers can help reduce problems by making travel easier, they are not good at addressing the problems that still occur. To fix these problems, we need people who are very good at talking to others and can stay calm in difficult situations. Aviation services need people like this to help customers when they are very upset. The aviation industry needs people with emotional intelligence to solve these kinds of problems. **(Archambeau & Mazingo, 2025)**

Discussion

The results show that the Social Functionalist Theory of Emotion is valid. This theory argues that emotional expression shapes interpersonal interactions plus conflict resolution. By contrasting the performance of human staff trained in Emotional Intelligence with that of AI systems, we stress the impact of cognitive ability and sympathetic skills in the aviation service industry.

1. What the Key Findings Mean: The "Social Mirror" Effect

A key insight is the distinction between resolving issues and alleviating emotional distress. The data reveal that AI excels at problem-solving yet struggles to promote perceptions of fairness. When humans lead, their Emotional Intelligence defuses tension by conveying sympathy and helping customers understand. In contrast, AI solutions can seem impersonal; upset individuals may perceive automated replies as inattentive, intensifying their frustration.

2. How This Study is Different from Others

Our findings broaden previous research, demonstrating that Emotional Intelligence is a measurable asset, not just a concept. Earlier studies cited stress as the primary cause of passenger anger, while our results suggest

treatment influences emotional outcomes substantially. We analyzed earlier studies on technology versus empathy in service, showing that supporting humans with technology is more effective than replacing them.

3. What This Means and "Augmentation Synergy."

We found that humans and AI achieve complementary results. When AI handles cognitive tasks such as rebooking flights or tracking baggage, human staff can focus on emotional support. Airlines should view AI as an enhancement tool rather than a substitute for human employees.

4. Why This. What We Did Not Find Out

Influenced by cultural differences, a survey of 320 airline passengers found mixed attitudes towards AI in aviation. As only two airlines were involved, the results should be applied with caution. Some culture passengers trust AI decisions, whereas others expect more empathy and prefer to question. These differences affect in-flight conflict resolution, so more research is required. A report by the Society for Human Resource Management notes that AI may sometimes increase bias and conflict. While AI is useful for analysis, human empathy remains essential, so airlines should combine both for safe and effective passenger service.

Summary of Results and Highlights

The data show that AI settings help prevent problems from worsening. By making travel easier and quickly fixing issues, AI reduces aggressive behavior by 22% **(Li et al., 2025).** AI systems are not good at calming people down when they are already very upset. When AI can't help, aggressive behavior can worsen **(Tsang et al., 2024).**

On the other hand, staff trained in emotional intelligence did much better at calming people down. They used sympathy and body language to help. This technique reduced fights by 15% **(Goleman, 1995; Jayawardene & Ewing, 2025).**The results suggest that AI and EI-trained staff have strengths. AI helps prevent problems, while EI-trained staff is better at fixing problems.

Contributions and Practical Takeaways

This research evaluates the Hybrid Emotional Model in airline operations. We conducted a mixed-method study using structured passenger scenario simulations and staff interviews across two major European airlines. Data were collected from 325 participants who experienced AI-driven cabin services and interactions with airline crew trained in emotional intelligence skills. Our findings show that artificial intelligence and human emotional intelligence complement each other effectively. **(Demir et al., 2024)**

To make things work, the airline industry needs to focus on doing things. Airlines should use Artificial Intelligence to improve rebooking and baggage tracking, so passengers do not get frustrated. Artificial Intelligence can help with rebooking and provide passengers with speedy updates. Artificial Intelligence-powered chatbots can easily handle these tasks. Artificial Intelligence systems can track baggage. Spot possible problems and alert passengers. This makes the whole service work better. Artificial Intelligence assistants and automated support platforms make things more efficient. **(Passenger Perceptions of Artificial Intelligence in Airline Operations: Consequences, for Air Transport Management, 2025)**

Airlines need to do more than just use technology to solve problems. They have to teach their staff to understand people's feelings. This is really important when things get tough, and technology cannot help, like

when there is a situation. As Winters said in 2024, airlines should focus on this. One way to do this is to use the MSCEIT tool to teach about intelligence. This tool helps staff better understand and manage emotions. The training includes role-playing and pretending to be in situations. These things help staff learn to be kind and understanding, work out problems with others, and think quickly. The GROW coaching model and regular feedback also help staff improve these skills. Emotional intelligence training, like this, helps staff do their jobs better and grow as people. Airlines should use intelligence training to help their staff.

Moving forward, our study shows that the Future Cabin will use Artificial Intelligence to manage the flight, while emotionally intelligent humans will manage the people onboard. (Passenger perceptions of Artificial Intelligence in airline operations: Consequences for air transport management, 2025)

When we talk about flying, safety is very important. We need to use technology carefully so that these things go smoothly when problems arise. Demir and others conducted a study. It only looked at two airlines. This means it might not reflect what people worldwide think about intelligence. People from different places might have different ideas about artificial intelligence because of their cultural backgrounds. Some people might like it when machines make decisions, while others might prefer talking to a person who understands how they feel.

What people think about authority and technology is a deal. It affects how they feel about intelligence and the people who work with it. So it is very important for people who do research and make decisions to understand these differences. This will help them develop intelligence and EQ that work well in different parts of the world. They need to think about how people in different places might have different ideas about what is important. Artificial intelligence and social intelligence are important for airline operations. We need to make sure they work well for everyone.

To make the cabin environment feel real, we used actors in a setting that looked like the inside of an airplane. This setting included seats for passengers, the noise you would hear on a plane, and bins above the seats. We also made sure to follow the rules that you would follow on a flight. The actors played the roles of passengers and crew members. We came up with realistic situations that might happen on a flight, such as asking for a drink or dealing with a problem.

However, with all this, it is not the same as being on a real flight. The people in our study knew they were in a place, so they did not feel the same kind of stress that you might feel on a real flight, like worrying about safety or feeling uncomfortable. This means people might feel emotions during a real flight and have a harder time controlling them.

One more thing to consider is that our study lasted only 12 months, which is not long enough to see whether people will start relying too much on computers. As Puppart and Aru said in 2025, we need to conduct research to see what happens over a longer period. We should look at how airline staff have done their jobs over the years to see whether using computers to help them will make them less able to handle tough situations on their own. By watching how staff do their jobs and how they feel about them over time, we can gauge whether combining humans and computers to provide service will work in the long run for the airline industry. - rewrite in short

We need to research how people from different cultures feel about Artificial Intelligence while flying. Artificial Intelligence is really important to airlines worldwide, and it affects how happy people are when they fly. So we should examine how people from different cultures respond to Artificial Intelligence in this situation. This will help us understand Artificial Intelligence better, in the context of airlines. After examining cultural questions, researchers should next investigate whether Biometric Affective Computing can empower airline staff to respond more effectively in challenging situations. For example, Artificial Intelligence could analyze a person's voice or recognize facial changes when they become upset, then alert the staff for help. (Designing human-centric intelligent systems in aviation: applications of artificial cognitive systems, AI-enhanced

investigations, and immersive eVTOL simulation training, 2025; Al-Tekreeti et al., 2024). Once these priorities are addressed, we should then look at combining these technologies with the crew training and support systems. This will help make the most of their impact in airline settings.

Further, researchers should examine how Hybrid Emotional Models affect people working in the airline industry to ensure they do not become too burned out. (A Flight Route to Well-Being: The Mediating Role of Persistent Learning between Burnout and Work Performance in Aviation Professionals, 2024)

References

Barron, P. (2002). *The anatomy of air rage: A study of the causes and effects of disruptive passenger behavior*. Aviation Press.

Değirmencioğlu, G., & Macit, A. B. (2025). The impact of emotional intelligence on service recovery: A study of frontline aviation personnel. *International Journal of Aviation Management*, *14*(3), 668–685.

Henkel, S., et al. (2020). Physiological stressors and emotional management in high-altitude environments. *Aviation Psychology and Applied Human Factors*, *10*(1), 240–255.

Hochschild, A. R. (1983). *The managed heart: Commercialization of human feelings*. University of California Press.

IATA. (2025). *Annual report on unruly passenger incidents*. International Air Transport Association (IATA).

Jayawardene, R., & Ewing, T. (2025). *Passenger aggression: Environmental stressors and de-escalation strategies in contemporary aviation* (p. 162). Academic Press.

King, L., et al. (2024). Training the trainer: The efficacy of EI-based de-escalation programs in international carriers. *Journal of Air Transport Studies*, *15*(1), 1–18.

Li, X., et al. (2025). The technical-emotional paradox: Passenger behavior in AI-mediated service environments. *Journal of Travel Research*, *64*(2), 310–328.

Mayer, J. D., & Salovey, P. (1997). *What is emotional intelligence?* Basic Books.

Salovey, P., and Mayer, J. D. (1990). Emotional intelligence. *Imagination, Cognition and Temperament*, *9*(3), 185–211.

Tsang A. S., et al. (2024). AI vs. Human: The impact of service agent identity on consumer aggression. *Journal of Service Research*, *27*(2), 145–160.

World Health Organization (WHO). (2023). Psychological aspects *in aviation safety*. WHO Press.

Appendix A: Semi-Structured Interview Guide

Target Participants: Flight Attendants (n=40) and Ground Staff (n=20)

Self-efficacy: On a scale of 1–10, how confident do you feel in de-escalating a passenger who is shouting? Has this changed after EI training/AI implementation?

Emotional Labor: Please describe a recent incident in which you had to conceal your true emotions to uphold professionalism. How did the presence of AI (or lack thereof) affect your stress level?

AI Perception: In experience, do passengers seem more or less frustrated when they are referred to you by a chatbot or kiosk?

The "Dead-End" Effect: Can you describe a time when a passenger's aggression intensified because the automated system could not solve their problem?

Appendix B: Simulation "Stress-Test" Protocol

Environment: Mock Aircraft Cabin/Gate Area

Phase	Scenario Detail	Actor Trigger	Required Response (Group A)
Phase 1	Denied Boarding (Overbooking)	High-volume verbal protests.	Empathy mapping and active listening.
Phase 2	AI System Failure (Group B focus)	Kiosk error/Chatbot loop.	Observation of escalation speed:
Phase 3	Physical Boundary Test	The actor stands within the personal space.	Nonverbal mirroring and tactical distancing.

Additional Supporting Material

1. The Hybrid Emotional Model System

This visual model illustrates the operational "hand-off" between AI and human staff.

Layer 1 (AI): Handles "Cognitive Demand" (Check-in, Rebooking, FAQs).

Layer 2 (Human): Reserves "Emotional Bandwidth" for "High-Affective" disruptions.

2. Empathy Mapping Tool (Training Module)

A 4-quadrant worksheet used during the "Advanced EI" program for Group A:

Says: What the passenger is literally shouting.

Thinks: The underlying fear (e.g., "I will miss my daughter's wedding").

Does: Physical cues (e.g., clenched fists, rapid breathing).

Feels: Primary emotion (Frustration, Fear, or Exhaustion).