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RESEARCH ARTICLE

The Effectiveness of Facebook in Disseminating Aviation Safety and Maintenance Practices

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Abstract

Facebook is widely used for communication, networking, and education. In aviation, it supplements learning on safety procedures and maintenance practices, but faces challenges such as misinformation, content verification issues, and limited access due to algorithm changes and connectivity limitations. A study by second-year Aircraft Maintenance Technology students at Indiana Aerospace University (A.Y. 2024–2025) used a quantitative approach, a survey of 100 students, to assess Facebook's role in promoting safety awareness, peer interaction, and technical knowledge. A five-point Likert scale with weighted mean and ranking measured effectiveness. Results showed Facebook is useful for learning when combined with credible sources, structured content, and digital literacy, highlighting the need for critical and responsible social media use in aviation education.

Keywords: *social media, aviation safety procedures, proper maintenance*

Introduction

Safety is the top priority in every aspect of our lives, requiring effective training and communication. Facebook, launched in 2004 by Mark Zuckerberg, has become a platform for real-time communication, collaboration, and education (Kemp, 2023). Originally a social network, it now supports academic engagement (Manca, 2020; Educational Media International, 2024). In Europe and Asia, aviation sectors, such as those at Indiana Aerospace University, use Facebook to share aviation materials. This aligns with Multimodal Learning, Problem-Based Learning, Cognitive Load, and Networked Learning Theories, all of which promote multimedia and collaborative learning.

The study shows Facebook's effectiveness in sharing aviation safety and maintenance practices. Mayer's Cognitive Theory of Multimedia Learning (2021) highlights combining words and images without overload. Li (2025) notes the role of digital technology and AI in safety. Chatzi (2019) emphasizes the importance of communication and trust in reducing errors. Social media may cause distractions and misinformation. Social Cognitive Theory (Bandura, 2016) supports structured Facebook groups to enhance learning and reduce risks.

Although social media, such as Facebook, is growing in aviation education, its effectiveness remains questioned. It still faces challenges like misinformation. Majerczak and Strzelecki (2022) stress verifying information to check for truth and intent. Tyagi (2023) adds that staff may avoid thorough investigations due to time and legal concerns. Strict maintenance practices are crucial for aircraft safety.

Aviation safety underpins regulations and standards. Social media like Facebook support aviation learning through timely communication. This study explores Facebook's role in spreading safety and maintenance practices. It helps Indiana Aerospace University's second-year AMT students access reliable materials. Findings may guide educators in using Facebook for real-time updates and interactive learning. The research promotes a stronger safety culture and operational practices.

The study aims to assess Facebook's usability, accessibility, and impact on Aircraft Maintenance education. The team, all second-year AMT students from Indiana Aerospace University, brings firsthand aviation knowledge. They'll evaluate how Facebook aids safety awareness and student engagement. Led by a student researcher, the study maintains academic rigor. Results provide evidence-based tips for utilizing social media in aviation education and enhancing educator-student communication.

Research Question/ Objectives

This study aimed to evaluate the effectiveness of Facebook in disseminating aviation safety and maintenance practices to second-year Aircraft Maintenance students at Indiana Aerospace University for the A.Y. 2024-2025. Specifically, it sought to answer the following sub-problems:

1. Determine the profile of the respondents in terms of age and gender.
2. Assessing the Effectiveness of Facebook in Disseminating Aviation Safety and Maintenance Practices in terms of:
    2.1. social media;
    2.2. aviation safety procedures; and
    2.3. proper maintenance?
3. Rank the problems encountered by the Second-Year Aircraft Maintenance Technology Students.

Methodology

Research Design

This research used a quantitative approach to collect and analyze numerical data, identifying patterns and outcomes. It assessed Facebook's effectiveness in delivering aviation safety and maintenance content to second-year Aircraft Maintenance students at Indiana Aerospace University for A.Y. 2024–2025. A structured survey gathered data on Facebook use, accessed content, and its perceived relevance and impact. Data were analyzed using descriptive statistics. Findings measured how effectively Facebook served as a platform for aviation learning.

Participants/Respondents

The respondents were second-year students in Aircraft Maintenance for the A.Y. 2024–2025 academic year. Using purposive sampling, the study targeted those active in both theoretical and practical aviation training. Out of 355 students, 100 were selected based on their exposure to safety and maintenance practices and regular use of Facebook for educational or industry content. Their background and digital habits made them suitable for assessing Facebook's effectiveness in aviation safety and maintenance.

Instrument

To gather data, the researchers developed a self-made survey consisting of four parts related to the study. The first part covered the respondents' profile, including gender, age, and self-assessed skills. The second part assessed Facebook's effectiveness in sharing aviation safety information and identified issues such as misinformation. The third and fourth parts focused on the clarity of safety procedures and the retention of maintenance practices. Responses used a five-point Likert scale, ranging from 5 (Strongly Agree) to 1 (Strongly Disagree), to evaluate Facebook's role in aviation safety education.

Procedure

The researchers used self-made survey questionnaires with three parts related to "The Effectiveness of Facebook in Disseminating Aviation Safety and Maintenance Practices." The first part covered respondents' profiles, including gender, age, and self-assessed reading comprehension, confidence, and retention. The second part examined Facebook's effectiveness, content reliability, and challenges, including misinformation and low engagement. The third part focused on safety procedures, clarity of shared information, and retention of maintenance knowledge from Facebook. Responses used a five-point Likert scale, from 5 Strongly Agree to 1 Strongly Disagree. These parts aimed to give a full view of Facebook's role in aviation education.

Data Analysis

The study used a five-point Likert scale with numerical ranges, descriptive equivalents, and interpretations to assess Facebook's effectiveness in sharing aviation safety and maintenance practices to second-year Aircraft Maintenance students at Indiana Aerospace University for A.Y. 2024–2025. This method allowed a clear analysis of students' views on accessibility, relevance, and educational value. Data were analyzed using the weighted mean to determine overall effectiveness and identify the most and least effective indicators, offering insights into strengths and areas for improvement.

Ethical Considerations

The study strictly adhered to ethical guidelines to protect the rights, dignity, and well-being of participants. Informed consent was obtained, ensuring voluntary participation and emphasizing confidentiality and the right to withdraw. Data was anonymized, securely stored, and managed in compliance with the Data Privacy Act of 2012. Small appreciation tokens were provided without coercion. The research emphasized gender sensitivity, inclusivity, and respect, with questions designed to avoid bias and ensure diverse perspectives. These measures supported transparency, honest feedback, and the overall integrity of the study on Facebook's role in aviation safety and maintenance education.

Results and Discussion

Figure 1 illustrates the respondents' profile in terms of age, with the majority falling within the 19-20 year age range.

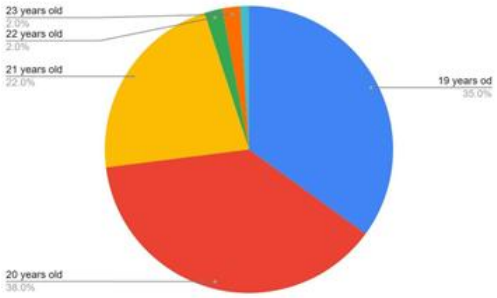

Figure 1. *Age*

Figure 2 shows the results of the survey questionnaire, in which the research respondents were asked about their gender profile. There were 100 respondents in total (100%). The majority of respondents were male, at 71%, and female, at 29%.

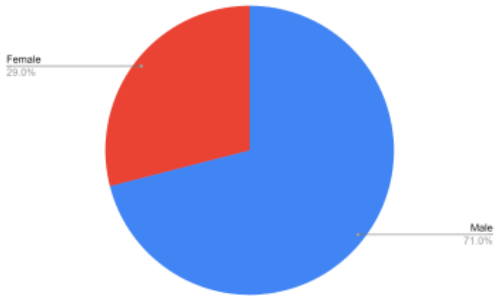

Figure 2. *Gender*

Social Media

Social media refers to interactive platforms where users create, share, and exchange information in virtual communities. These platforms facilitate collaboration, real-time communication, and the sharing of multimedia content. The Cognitive Theory of Multimedia Learning posits that combining images and text enhances learning. Social media supports this by integrating text, visuals, and interactivity. This enhances engagement and understanding. As a result, social media is key to modern communication and knowledge sharing.

Table 1 presents the effectiveness of Facebook in disseminating aviation safety and maintenance practices in terms of social media.

Table 1. *Social Media*

Indicators	*Weighted Mean*	*Description*
I have seen various contents in Facebook pertaining to Aviation through Picture, Videos & Reels.	4.36	Strongly agree
I regularly encounter helpful information from content sharing on Facebook.	4.24	Strongly agree
I follow Facebook pages and groups relevant to aviation for Real-time updates.	4.02	Agree
I am more likely to believe aviation content on Facebook when it includes evidence-based data or official links	3.98	Agree
I participate in community building through interacting and engaging on Facebook Groups and Pages related to Aviation safety and Maintenance Practices.	3.11	Neutral
Average Weighted Mean	3.94	Agree

Legend: 4.21-5.00 = Strongly Agree 3.41-4.20 = Agree 2.61-3.40 = Neutral 1.81-2.60 = Disagree 1.00-1.80 = Strongly Disagree

Aviation Safety Procedures

Aviation safety procedures are standardized by authorities such as the FAA or EASA to ensure safe operations through regular checks, effective emergency responses, and thorough maintenance. They ensure compliance and reduce risks. Li (2025) notes that digital technology and AI, including Facebook, enhance safety and reduce human error through tech-based engagement. These tools improve communication and awareness. Safety standards are now evolving with modern technologies to achieve greater reliability.

Table 2 presents the effectiveness of Facebook in disseminating aviation safety and maintenance practices in terms of aviation safety procedures.

Table 2. *Aviation Safety Procedures*

Indicators	*Weighted Mean*	*Description*
I believe that Facebook can effectively support the dissemination of aviation safety updates and	4.14	Agree

procedures.		
I have improved my knowledge of Risk management through content found on Facebook.	3.93	Agree
The safety procedures that I learned from Facebook are applicable in real maintenance scenarios.	3.89	Agree
I found content in Facebook pertaining to human factors awareness focused on reducing human errors	3.86	Agree
Facebook provides accurate information about training and safety drills.	3.62	Agree
Average Weighted Mean	3.89	Agree

Legend: 4.21-5.00 = Strongly Agree 3.41-4.20 = Agree 2.61-3.40 = Neutral 1.81-2.60 = Disagree 1.00-1.80 = Strongly Disagree

Proper Maintenance

Proper maintenance involves regular aircraft servicing to ensure they remain safe, efficient, and reliable. It includes inspections, repairs, and following the manufacturer's and regulatory guidelines. Its goal is to catch issues early to ensure safe operations. Chatzi (2019) notes that communication and trust help prevent human error. Aircraft Maintenance Technology students use Facebook to share and reinforce maintenance practices. Good communication improves coordination and accuracy in servicing. Proper maintenance boosts aviation safety and efficiency.

Table 3 presents the effectiveness of Facebook in disseminating aviation safety and maintenance practices in terms of proper maintenance.

Table 3. *Proper Maintenance*

Indicators	*Weighted Mean*	*Description*
What I learn about aircraft maintenance on Facebook influences my approach to aircraft care and inspections.	3.98	Agree
Online aviation communities on Facebook have deepened my understanding of correct maintenance procedures.	3.91	Agree
I have used Facebook's Save or Bookmark feature to revisit helpful proper maintenance tutorials or tips.	3.89	Agree
I am more likely to retain proper maintenance procedures when I engage with Facebook features like Live demonstrations or shared checklists.	3.79	Agree
I have seen Facebook posts that corrected common maintenance mistakes in aviation.	3.74	Agree
Average Weighted Mean	3.86	Agree

Legend: 4.21-5.00 = Strongly Agree 3.41-4.20 = Agree 2.61-3.40 = Neutral 1.81-2.60 = Disagree 1.00-1.80 = Strongly Disagree

Problems Encountered

The problems encountered in accessing reliable aviation safety information on Facebook include misinformation, which can spread incorrect details about safety protocols and procedures. Unrelated posts often appear in aviation discussions, making it difficult to find relevant and reliable information. Algorithm changes affect the visibility of aviation safety content, sometimes prioritizing other topics over critical updates. Limited connectivity in certain regions restricts access to real-time discussions, reducing opportunities for aviation professionals to stay informed. Difficulty verifying credibility leads to uncertainty about the accuracy and reliability of shared safety guidelines, which can potentially impact proper aviation practices.

Table 4 contains the following problems encountered in the effectiveness of Facebook in disseminating aviation safety and maintenance practices.

Table 5. *Problems Encountered*

Indicators	*Frequency*	*Rank*
I often encounter misinformation about aviation topics on Facebook.	55	1
I experience difficulty finding specific aviation safety information on Facebook due to the large volume of unrelated content.	48	2
The frequent changes in Facebook's algorithms make it harder to consistently access maintenance practices posts.	45	3
Limited internet connectivity sometimes prevents me from accessing aviation safety and proper maintenance practices content on Facebook.	43	4
It is difficult to verify the credibility of aviation safety content found on Facebook.	41	5
I believe that Facebook rarely supports the dissemination of aviation safety updates and procedures.	36	6
Facebook rarely provides accurate information about training and safety drills.	32	7
I do not participate in community building through interacting and engaging on Facebook Groups and Pages related to Aviation safety and Maintenance Practices.	26	8
I have not learned proper aircraft maintenance practices from Facebook content.	25	9
What I learn about aircraft maintenance on Facebook does not influence my approach to aircraft care and inspections.	18	10

The top five problems encountered in the effectiveness of Facebook in disseminating aviation safety and maintenance practices are: encountering misinformation about aviation topics on Facebook with a frequency of 55; difficulty in finding specific aviation safety information due to the large volume of unrelated content with a frequency of 48; frequent changes in Facebook's algorithms that hinder consistent access to maintenance practices posts with a frequency of 45; limited internet connectivity that sometimes prevents access to Facebook content related to aviation safety and proper maintenance practices with a frequency of 43; and difficulty in verifying the credibility of aviation safety content found on Facebook with a frequency of 41.

The survey reveals that misinformation about aviation is prevalent on Facebook, underscoring the importance of verifying content to ensure accuracy, as emphasized by Majerczak and Strzelecki (2022). Despite users' good intentions, strategies are needed to reduce misinformation.

Respondents found it hard to access credible aviation safety info on Facebook due to clutter and unrelated posts, supporting Majerczak and Strzelecki's (2022) point about verifying information and relying on trust and media credibility.

Frequent algorithm changes on Facebook reduce the visibility of important aviation maintenance content, echoing Majerczak and Strzelecki's (2022) view that information verification and credibility are vital in algorithm-driven platforms.

Limited internet access hinders users from finding accurate aviation information on Facebook, stressing the need for stable connectivity and credible sources, as per Majerczak and Strzelecki's (2022) theory on the risks of misinformation.

Respondents had trouble verifying aviation safety content due to unclear sources in user posts, aligning with Majerczak and Strzelecki's (2022) theory that stresses the importance of trust, credibility, and careful evaluation on social media.

Conclusion

The study revealed that second-year Aircraft Maintenance Technology students at Indiana Aerospace University acknowledged Facebook's effectiveness as a learning platform for aviation safety and maintenance practices. They emphasized its accessibility, interactivity, and usefulness for engaging with aviation content, joining academic groups, and receiving timely safety updates. Through discussions, real-life examples, instructional content, and peer interactions, Facebook helps reinforce knowledge, raise awareness of safety protocols, and reduce the risk of human error. Overall, the findings highlight Facebook as a valuable educational tool that strengthens students' grasp of proper maintenance practices and supports the development of safety-conscious aviation professionals for A.Y. 2024–2025.

To maximize Facebook's potential as a learning platform, the study recommends that students and instructors actively engage with credible, aviation-related pages and groups managed by reputable organizations, while also partnering with experts through live Q&A sessions or webinars. To address challenges such as misinformation, algorithm changes, and difficulty in finding reliable content, students should create curated lists of trusted sources, save and engage with key posts, and enable notification settings for consistent access. Furthermore, downloading essential materials during stable internet connections and encouraging the use of text-based updates can help mitigate connectivity issues. Finally, teaching students how to cross-check and verify aviation information with official bodies such as the FAA or ICAO will ensure the credibility of learning resources and strengthen safe maintenance practices.

References

Bandura, A. (2016). Social cognitive theory. In J. D. Wright (Ed.), International encyclopedia of the social & behavioral sciences (2nd ed., Vol. 21, pp. 349–353). Elsevier. https://doi.org/10.1016/B978-0-08-097086-8.26059-9

Chatzi, Anna. (2019). The role of communication in aviation maintenance and its relation to trust. PhD Thesis Doctor of Philosophy. University of Southern Queensland. https://doi.org/10.26192/ZNAQ-VP76

Kok Yufeng. (2024, October 18). S'pore among 5 Asean nations to share key aviation safety data. The Straits Times. https://www.straitstimes.com/singapore/transport/s-pore-malaysia-indonesia-thailand-and-philippines-to-share-key-aviation-safety-data

Li, D., Yao, A., Feng, K., Zhou, H., Wang, R., Cheng, M., Li, H., Wang, D., & Ding, S. (2025). Next Frontiers of Aviation Safety: System-of-Systems Safety. Engineering. https://doi.org/10.1016/j.eng.2025.01.002

Majerczak, P., & Strzelecki, A. (2022). Trust, Media Credibility, Social Ties, and the Intention to Share towards Information Verification in an Age of Fake News. Behavioral Sciences, 12(2), 51. https://doi.org/10.3390/bs12020051

Manca, S., & Ranieri, M. (2016). Facebook and the others. Potentials and obstacles of Social Media for teaching in higher education. Computers & Education, 95, 216–230. https://doi.org/10.1016/j.compedu.2016.01.012

Mayer, R. E. (2021). Cognitive Theory of Multimedia Learning. The Cambridge Handbook of Multimedia Learning, 57–72. https://doi.org/10.1017/9781108894333.008

Savery, J. R., & Duffy, T. M. (1995). Problem-Based Learning: An Instructional Model and Its Constructivist Framework. Educational Technology, 35(5), 31–38. http://www.jstor.org/stable/44428296

Tang, Y., & Hew, K. F. (2017). Using Facebook for teaching and learning: A review of the literature. Educational Technology Research

and Development, 65(4), 1093–1112. https://doi.org/10.1007/s11423-016-9506-0

Tyagi, A. K., Ramesh Kumar Tripathi, & Soufiane Bouarfa. (2023). Learning from past in the aircraft maintenance industry: An empirical evaluation in the safety management framework. Heliyon, 9(11), e21620–e21620. https://doi.org/10.1016/j.heliyon.2023.e21620