

12-23-2024

Women and Minorities in Collegiate Aviation: What Factors Lead to Enrollment and Persistence

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This project is focused on women and minorities in collegiate aviation. The purpose of this project is to determine the experiences that influence women and minorities to enroll in a collegiate aviation program and the factors that have helped them persist and succeed. According to the United States Bureau of Labor Statistics, the percentage of women and minorities working in the aviation industry is relatively low compared to their participation rates in the total workforce of the United States. Increasing the number of women and minorities working in the aviation industry must begin with increasing their numbers in the nation's flight schools and collegiate aviation programs. Participants will be interviewed about the experiences that influenced their decision to enroll in a collegiate aviation program and the factors that have helped them persist and succeed. The benefits of this project include information that will help increase the number of women and minorities working in the aviation industry by increasing their numbers in the nation's flight schools and collegiate aviation programs.

Recommended Citation:

Fowler, R. (2024). Women and minorities in collegiate aviation: What factors lead to enrollment and persistence. *Collegiate Aviation Review International*, 42(2), 181-186. Retrieved from <http://ojs.library.okstate.edu/osu/index.php/CARI/article/view/10035/8899>

Women and Minorities in Commercial Aviation

Increasing the number of women and minorities working in the aviation industry has long been a challenge with a small fraction of the workforce serving in roles such as pilots and maintenance technicians. The focus of this study will be on the factors that encourage and deter women and minorities from enrolling in and successfully completing collegiate aviation programs. Past studies have documented only marginal growth in the number of women and minorities working in these highly paid-occupations (Fowler et al., 2023). Understanding the unique challenges faced by these groups could lead to potential solutions and improved diversity in the aviation industry.

This research will be a qualitative phenomenological study that seeks to understand individual lived experiences through interviews, observations, and narrative interpretation rather than the numerical data that is generated and analyzed in a quantitative study. Quantitative social science researchers use various tools such as surveys and questionnaires to collect numerical data that is then statistically analyzed to test their research hypotheses. In qualitative research, the researcher serves as the primary data collection instrument by engaging with participants to gather insights that will reveal their motivations, support systems, and barriers to success. The qualitative approach captures an individual's personal experiences in the pursuit of a career in aviation that quantitative data alone may not reveal.

The goals of this research study include exploring the motivational factors that lead women and minorities to pursue and succeed in a collegiate, professional pilot program and understanding the support systems and the barriers that impact their retention. The results of this research will have significant implications for educational institutions, policymakers, and industry stakeholders who seek to improve inclusivity in aviation.

Research Questions

This study will be guided by two research questions: What factors lead women and minorities to enroll and persist in a collegiate professional pilot program? How do the experiences and support systems within a collegiate professional pilot program influence enrollment and persistence?

Literature Review

There are recurring themes that emerge from the existing literature concerning the challenges faced by women and minorities who pursue careers in the commercial aviation industry.

According to Opengart and Ison (2016), a lack of role models and mentors is a serious barrier to women who enroll in professional pilot programs. The lack of female representation leaves many female students feeling uncertain about their place in commercial aviation. There are very few female role models who provide guidance and advice to aspiring female professional pilots.

Turney (2018) found that gender stereotypes and cultural sexism was a significant issue that women face in pursuit of aviation careers. Also, women lack confidence in math and science due to societal expectations. As a result, women have fewer role models and mentors to help guide them to success. The traditional masculine image of commercial aviation discourages many women from pursuing a career in aviation.

Perceptions of intelligence and competency were the focus of research by Evans and Feagin (2012), who found that members of minority groups face stereotypes and report feeling the need to suppress emotions and prove themselves to be competent due to the biases they face from colleagues. This not only affects their work lives but also influences their personal lives. The emotional strain created by this bias has a negative effect on job performance and motivation.

Although Bureau of Labor Statistics (BLS) data over the last 20 years demonstrates a slow increase in the number of women pilots and technicians, the ratio of these individuals remains stubbornly low. If the current rate of growth continues, there will only be moderate growth in women's participation rates over the next 10 years. The same is true for Black, Asian, and Hispanic participation rates. These groups will remain proportionately smaller compared to White participation rates over the next 10 years (BLS, 2021).

Many women and minorities lack important networking opportunities that are usually available to their white male colleagues. Networks are critical in commercial aviation for career growth and success. Existing research demonstrates the need to create more networking and mentorship opportunities for women and minorities in the aviation industry.

Preliminary Data Analysis and Findings

Several themes were revealed that reflect the experiences of women and minorities who participate in collegiate aviation programs:

Financial challenges were a common theme among interview participants. Many relied on student loans, scholarships, and support from family members to pay for their education. The need to work part-time jobs was also common, and this combined with the demands of flight training and college course work created significant stress. Without financial support, many of these students indicated that they would not be able to continue.

Another common theme involved the emotional impact of subtle bias which also contributed to feelings of isolation. Women and minorities reported often feeling out of place and described interactions with instructors and other students that felt uncomfortable and dismissive, but not overtly discriminatory. One participant said that an instructor talked to him "weirdly," giving him the feeling that he didn't belong in the program.

Support from family, friends and mentors was cited frequently by participants as critical for success. Encouragement and advice from role models in the aviation industry who share similar backgrounds were especially important for success in a collegiate aviation program. In addition to role models and mentors, students who participated in study groups and student

organizations indicated that the sense of community created by these groups had a positive impact.

Key Themes from the First Phase In Vivo Coding

Using In Vivo coding, the qualitative data was categorized as follows:

- **Financial Barriers:** Finances were mentioned by most of the participants as an issue that causes significant emotional stress. Many students have to work part-time jobs to make ends meet. Statements like “My parents help me out” and “I work part-time” both emphasize the reliance on different sources of financial support.
- **Gender and Racial Challenges:** Subtle and indirect exclusion due to gender and racial biases was often described as a source of emotional stress. Feelings of isolation and discrimination were reflected in statements like “I feel like everything has been a bit of a struggle” and “I would feel a bit odd or out of place.”
- **Mentorship and Support:** A critical component of success in a collegiate aviation program that was mentioned by every participant was mentorship and support. Supportive faculty, staff, family, and experienced aviation professionals were cited as a crucial element leading to successful completion. Statements like “My mom helped me a lot” and “A teacher in high school” demonstrate the impact that positive support has on success in higher education. Guidance and encouragement from mentors help participants feel that they belong in the aviation industry.
- **Awareness and Early Exposure:** Introducing aviation as an option earlier through school programs and community events was mentioned to encourage more minorities and females to consider aviation career opportunities. Participants recommended “more social media aimed at high school kids” and “having pilots come to schools to talk” to raise awareness and spark interest at a younger age.

Recommendations and Conclusions

The presentation concluded with the following recommendations to increase diversity in the aviation industry:

- **Financial Support:** Financial aid options, scholarships, and work-study programs targeted at women and minority students should be increased by educational institutions and industry organizations to decrease the financial challenges and make careers in aviation more accessible.

- **Inclusive Support Systems:** Collegiate aviation programs should strive to create an inclusive culture that is welcoming to women and minorities. Examples include providing anti-bias training for faculty and instructors and resources for women and minority students to help them feel part of the aviation community.
- **Mentorship Programs:** The data clearly supported the importance of mentors from similar backgrounds in the aviation industry to provide guidance and encouragement to women and minorities pursuing an aviation degree. Participants frequently stated that groups like the Women in Aviation International and the Organization of Black Aerospace Professionals were instrumental in fostering connections in the aviation industry.
- **Early Exposure Initiatives:** Universities and aviation organizations should partner with secondary schools to introduce students to aviation as a potential career path. Effective ways to provide early exposure include discovery flights, aviation camps, and outreach events.
- **Encouraging Participation in Student Organizations:** Students who participate in student-led aviation organizations build networks and support systems within collegiate aviation programs and beyond. Student organizations provide opportunities for students to connect with one another and share experiences that will help them prepare for careers in the aviation industry.

Conclusion

The preliminary results of this study highlight the challenges and potential solutions for increasing diversity in the aviation industry. Inclusivity and accessibility in the aviation industry can be improved by addressing financial, emotional, and cultural barriers and promoting mentorship and early exposure to opportunities in the industry for women and members of minority groups. Addressing these challenges will foster an inclusive environment that supports the next generation of diverse aviation professionals.

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