
2023

The Influence of Marketing Communication Approaches on Student Pilots' Choices of Flight Schools

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Jin, J. (2023). The Influence of Marketing Communication Approaches on Student Pilots' Choices of Flight Schools. *Journal of Aviation/Aerospace Education & Research*, 32(2). DOI: <https://doi.org/10.58940/2329-258X.1966>

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Abstract

As U.S. domestic commercial aviation activities have been recovering and will continue to recover from the COVID-19 pandemic over the next few years, a shortage in the regional airline pilot workforce is noted. Therefore, it is crucial to increase the reservoir of pilot candidates to sustain the industry's rigor. To assist advanced flight schools' recruitment of new pilot candidates, this study examined how various marketing communication approaches influenced student pilots' selections of flight schools. This study also further investigated how student pilots' preferences in accessing school information differed in accordance with their different demographic profiles/market segments of residency status, types of school the participants attended, gender, annual incomes, ages, and education levels. The study sample included 201 student pilots who participated in an online survey which was conducted in 2019 examining their school choice experiences pertaining to vocational noncollegiate flight schools in California. Descriptive and inferential statistics were utilized to analyze the survey data. The findings revealed that, in general, student pilots considered contact with school flight instructors, contact with staff, and word of mouth referrals as the three most influential marketing communication approaches in their decisions in choosing a flight school. Statistically significant differences in the perceived influence of marketing communication approaches on school selections among student pilots with different demographic profiles were mostly identified between domestic students versus international students and Part 61 school students versus Part 141 school students.

Keywords: recruiting student pilots, promoting flight schools, marketing communication approaches, pilot workforce sustainability

Becker and Cunningham (2017) forecasted that 42% of active airline pilots will have retired between the years 2017 and 2026 from the top five airlines in the U.S. Along with such hastened retirement rates and the fact that there is an insufficient number of professional pilot candidates, the U.S. Federal Aviation Administration (FAA, 2022) predicted a trend of the shortage of regional airline pilots while the domestic commercial aviation sector traffic demand has been recovering and is expected to resume to the pre-COVID 19 levels by 2023. Furthermore, Boeing's (2022) pilot outlook forecasted a shortfall of both mainline and regional airline pilots that could become a global issue, as the overall air traffic demand has been and will continue to rebound to 2019 levels, it is assumed by 2024, and will subsequently surpass pre-COVID 19 levels. Nonetheless, the pilot outlook also noted one problem: the whole industry lacks adequate training capacity to supply a sufficient number of professional pilots (Boeing, 2022). Hence, any country that is reliant on aviation must crucially address its domestic training providers and expand its own nationwide training capacity to guarantee sustainable pilot workforce resources.

In the U.S., historically, prior to 2001, a large percentage of the airline pilot workforce, about 70%, had been military-trained; by 2014, this population decreased to approximately 30% (U.S. Government Accountability Office [GAO], 2014). This decrease may be because the military has also encountered the pilot shortage issue, and therefore, has been making efforts to minimize the military pilot attrition rate ("Military Pilot Shortage" 2017). Given such trends, civilian flight schools are taking the responsibility in supplying career pilots to the industry since U.S. air carriers generally rely on outside training providers for essential baseline pilot training.

Of flight schools, vocational noncollegiate flight schools, which make up 95% (GAO, 2011), have been playing a major role in providing a competent pilot workforce to help maintain employment needs and assist sustainable, industrial development (Epperson, 2012). Vocational schools typically are market-driven, for-profit, private operating foundations; student enrollment rates can affect these schools' profitability and operation (Lee & Topper, 2006). Accordingly, assisting vocational flight schools in successfully promoting themselves and effectively recruiting students may be an essential approach that would indirectly help maintain or even expand the industry's training capacity, and it could be one approach to cope with the trend of the shortage of airline pilots, as it would directly help increase the reservoir of pilot candidates.

Maringe and Gibbs (2008) stated that because prospective students with different characteristics and demands usually have different preferences in the way of accessing school information, a key tactic for effectively promoting the school and reaching students is the development and implementation of appropriate marketing communication approaches that match different students' preferences. This study assessed how various marketing communication approaches influenced student pilots' selections of vocational flight schools and further investigated how student pilots' preference in accessing school information differed in accordance with their different demographic profiles.

Literature Review

Marketing Communication Approaches

Kotler and Keller (2012) introduced marketing communications as “the means by which firms attempt to inform, persuade, and remind consumers—directly or indirectly—about the products and brands they sell” (p. 476). Many researchers in the marketing of higher education field, for example, Kisiolek et al. (2021) and Martirano (2017), investigated appropriate school

communication approaches for effective market positioning and recruiting students. They found that internet-based approaches, such as school websites and social media, have been gaining recognition by school marketers and recruiters. As Kisiołek et al. (2021) noted, schools must adapt to the development of the marketplace where students today are living in the digital age surrounded by internet and mobile services.

Indeed, according to Mahajan and Golahit (2017), Martirano (2017), and Meyer's (2019) survey of college and university students regarding their perceptions about the effectiveness of school marketing communication approaches, it was found that students reported internet-based approaches mostly influenced their decisions in selecting the school. Some other key influential approaches included brochures (Mahajan & Golahit, 2017), word of mouth (Martirano, 2017), and campus visits (Meyer, 2019); these approaches were highlighted as the second most influential approaches by students. Mahajan and Golahit's (2017) study focused on student enrollment in a university for technical programs; their study categorized banners and educational fairs as conventional marketing communication approaches, and such conventional approaches were found to have less influence.

Yet, Maringe and Gibbs (2008) stated that potential students' access and preferences of various marketing communication approaches may differ in accordance with students' different characteristics and profiles. For example, Maringe and Gibbs (2008) found that when selecting a school, generally, female students were more likely to prefer reading brochures to access school information, whereas male students were found to prefer using the internet. A more recent example from Alfattal's (2017) comparative study of U.S. domestic and international students' choice of a university revealed that domestic students considered campus visitations greatly

influenced their school choice decisions, and international students' decisions were more influenced by printed materials or video.

Market Segmentation

Such marketing practice examples have contributed to market segmentation strategy, which is acknowledged as a foundation of marketing in higher education (Hemsley-Brown & Oplatka, 2016). Litten et al. (1983) defined the market segment as “a group of people with similar characteristics, behavior, desires, needs, perceptions, or other phenomena that are similar within the group but are distinct from the rest of the market or from other groups in the market” (p. 15). Hemsley-Brown and Oplatka (2016) suggested that identifying students' preferences toward marketing communication approaches based upon students' characteristics would help schools develop focused approaches and enable schools to target the diverse market segments and position schools' programs and services more effectively.

Maringe and Gibbs (2008) proposed four commonly recognized student market segments which were categorized based on students' characteristics and provided a few examples: demographic (e.g., age, gender, and socioeconomic status), geographic or geo-demographic (e.g., countries, regions, and cities), behavioral (e.g., students' attitudes and goals), and psychographic (e.g., students' loyalty, opinions, and aspirations). Of those market segments, student demographic information is relatively easier to obtain and is frequently studied for a better understanding of student enrollment behavior for enhancing school marketing and recruitment efforts (Kotler & Fox, 1995).

Gaps in the Research

The literature regarding marketing higher education for enhancing strategies in recruiting students is saturated with studies focusing on traditional 18- to 25-year-old (Hemsley-Brown & Oplatka, 2016) or 18- to 21-year-old (Kazis et al., 2007) students' perceptions based on their school choice experiences when they enrolled in collegiate academic programs. This homogenous group of students typically continue postsecondary education as full-time students directly after high school graduation and are financially dependent (Kazis et al., 2007).

It should be noted that many students in vocational education are nontraditional students (Lee & Topper, 2006). When compared with traditional students, according to Osborne et al. (2004), nontraditional students are generally recognized as a heterogeneous group with more complex demographic profiles and are usually divided into more diverse market segments, for instance, based on different age ranges (one typical characteristic is being over the age of 24 [Kazis et al., 2007]), incomes, and education levels. Given that there is a lack of research specifying students' perceptions about marketing communication approaches that influence their decisions to enroll in vocational flight schools, this study aimed to fill that gap in the literature.

Statement of Purpose and Research Questions

The purpose of this study was to assess how marketing communication approaches influenced student pilots' selections of vocational noncollegiate flight schools in California for their initial private pilot programs. Furthermore, the study identified how student pilots' preferences in accessing school information differed in accordance with their different demographic profiles. This study was guided by two main research questions and six sub-questions:

1. What are the demographic profiles of student pilots who enrolled in vocational flight schools for their initial private pilot programs?
2. How do student pilots perceive the influence of marketing communication approaches on their flight school choice decisions?
 - 2-a. Is there a significant difference in the perceived level of influence of marketing communication approaches on flight school choice decisions between U.S. domestic and international student pilots?
 - 2-b. Is there a significant difference in the perceived level of influence of marketing communication approaches on flight school choice decisions between Part 61 school and Part 141 school student pilots?
 - 2-c. Is there a significant difference in the perceived level of influence of marketing communication approaches on flight school choice decisions between male and female student pilots?
 - 2-d. Is there a significant difference in the perceived level of influence of marketing communication approaches on flight school choice decisions among student pilots with different annual incomes (personal income or household income if supported by family)?
 - 2-e. Is there a significant difference in the perceived level of influence of marketing communication approaches on flight school choice decisions among student pilots of different ages?
 - 2-f. Is there a significant difference in the perceived level of influence of marketing communication approaches on flight school choice decisions among student pilots with different education levels?

Methodology

Data Source

This present study is a sub-study based on Jin's (2019) online survey of 201 student pilots, which investigated their experiences and perspectives in selecting vocational flight schools. The survey was conducted from July to October 2019 with approval from the Institutional Review Board at a university in California. The participants completed the informed consent form when taking the survey. The survey research was designed to require the participant to meet the following participation criteria: (1) was at least 18 years of age, (2) intended to be an airline pilot or was already an airline pilot, and (3) was enrolled in the (airplane) private pilot program at a vocational Part 61 or a Part 141 flight school in California between 2016 and 2019.

Limitations

The sample for this study was limited to student pilots who enrolled in the private pilot program, which is the typical initial training program for those who aspire to be an airline pilot. Effectively promoting entry-level programs is essential to attract new students to join the aviation industry and could be one fundamental strategy for expanding the reservoir of pilot candidates. Thus, it is necessary to better understand student pilots' perspectives on how marketing communication approaches influenced them to enroll in a flight school pertaining to the initial training programs.

This study was focused on vocational flight schools in California. At the time the survey was conducted in 2019 (Jin, 2019), California had the second-largest population of active student pilots during the consecutive years of 2016-2018 (FAA, n.d. [see Estimated Active Pilots and Flight Instructors by FAA Region and State, in *Active Civil Airmen Statistics* of 2016, 2017,

2018)]). This information indicates that California has a large training capacity and could be studied as a prototypical state to collect relatively standardized survey data.

Sample Size

To determine the proper sample size for the study, a priori power analysis was conducted by using G*Power software. The calculation results recommended a minimum sample size of 200 subjects for the application of one-way ANOVA tests that would obtain a power of 80% and a significance level of 5% and generate the effect size of 25%, as the study was designed with the maximum group number of 5. In this study, a total of 201 survey responses were included.

Data Collection

The study data were gathered via an online survey tool—Qualtrics—through two paths: various pilot community websites and 110 vocational flight schools which helped distribute the survey. As previously mentioned, the data was collected between July and October 2019. The study used a random sampling method so that every prospective participant would have an equal opportunity to be part of the research; the random sampling method ascertained the study sample to be the exemplar of the targeted population (Panacek & Thompson, 2007).

Instrumentation and Analysis

In accordance with Burns and Grove's (1993) proposal on assuring the study's content validity, Jin's (2019) survey instrument for this study was adapted from previous relevant, standardized surveys, and a panel of experts from related fields was invited to help review and revise the questionnaire. This study included the following eight marketing-communication-approach survey items: (1) school's website, (2) campus visits, (3) contact with school staff, (4) contact with (school) certificated flight instructors (CFIs), (5) word of mouth, (6) social media, (7) other internet sources, and (8) conventional media.

The survey used the five-point Likert scale model. As part of the questionnaire, participants were asked: Regarding the schools that you have considered, please rate from 1 (not influential at all) to 5 (extremely influential), how influential each flight school marketing communication approach was to you in your choice of a school for your private pilot training. To analyze and interpret the collected data, descriptive statistics as well as inferential statistics of independent two-sample t-tests and one-way ANOVA tests were utilized. All significant results were based on a critical alpha level of 0.05.

Findings

Research Question 1

What are the demographic profiles of student pilots who enrolled in vocational flight schools for their initial private pilot programs?

Table 1 presents the frequencies and percentages of the study participants' demographic information when they enrolled in their initial training programs as student pilots. It shows that domestic student pilots accounted for 78.1% of the sample, and 21.9% of the sample were foreign students. The survey revealed 57.2% of the participants were enrolled in Part 61 flight schools, and 42.8% of them were enrolled in Part 141 flight schools. Most of them were male student pilots (87.6%), but female student pilots represented 12.4%. With respect to annual income, 23.4% of the student pilots earned under \$25,000; the number of student pilots who earned between \$25,000-\$50,000 and between \$50,001-\$75,000 showed a similar rate: 22.9% and 22.4% respectively. A smaller number of respondents, 14.4%, earned between \$75,001-\$100,000; and 16.9% earned higher than \$100,000. Regarding age, 22.4% of the participants were aged 15-18 when enrolled in the pilot programs, 37.3% were between 19-24 years of age, 27.9% were aged 25-34, and those who were between 35-44 years of age and aged 45 or older

accounted for 10% and 2.5% respectively. In terms of education, 43.2% of the participants had a higher education degree (bachelor's, graduate, or higher) at the time of enrollment for their initial pilot training programs.

Table 1

Frequencies and Percentages for Demographic Profiles (N = 201)

	Frequency	Percent
<i>U.S. Domestic or International</i>		
Domestic Student	157	78.1
International Student	44	21.9
<i>Part 141 School or Part 61 School</i>		
Part 61 School	115	57.2
Part 141 School	86	42.8
<i>Gender</i>		
Male	176	87.6
Female	25	12.4
<i>Annual Income Level (personal income or household income)</i>		
Under \$25,000	47	23.4
\$25,001-\$50,000	46	22.9
\$50,001-\$75,000	45	22.4
\$75,001-\$100,000	29	14.4
Higher than \$100,000	34	16.9
<i>Age Range</i>		
18 or younger	45	22.4
19-24	75	37.3
25-34	56	27.9
35-44	20	10.0
45 or older	5	2.5
<i>Highest Level of Education</i>		
Some high school	24	11.9
High school graduate	40	19.9
Some college	50	24.9
Bachelor's degree	66	32.8
Graduate degree or higher	21	10.4

Research Question 2

How do student pilots perceive the influence of marketing communication approaches on their flight school choice decisions?

Table 2 displays the average ratings and standard deviation of the survey results in terms of student pilots' perceived influence of eight marketing communication approaches on their vocational flight school selections. The participants rated contact with school CFIs ($M = 3.76$; $SD = 1.24$), contact with school staff ($M = 3.64$; $SD = 1.12$), and word of mouth ($M = 3.51$; $SD = 1.32$) as the three most influential approaches. The lowest rated three approaches were conventional media ($M = 1.93$; $SD = 1.18$), social media ($M = 2.59$; $SD = 1.26$), and internet sources ($M = 3.01$; $SD = 1.32$).

Table 2

Influence of School Marketing Communication Approaches (N = 201)

	M	SD
(1) Contact with school CFIs	3.76	1.24
(2) Contact with school staff	3.64	1.12
(3) Word of mouth	3.51	1.32
(4) Campus visits	3.32	1.32
(5) School's website	3.27	1.40
(6) Internet sources other than school's website and social media	3.01	1.32
(7) Social media	2.59	1.26
(8) Conventional media (e.g., radio, television, and print)	1.93	1.18

Note. Likert scale: 1 = not influential at all, 5 = extremely influential.

Research Question 2-a

Is there a significant difference in the perceived level of influence of marketing communication approaches on flight school choice decisions between U.S. domestic and international student pilots?

Table 2-a demonstrates t-test results for the perceived influence of marketing communication approaches on flight school selections between domestic and international student pilots. Five out of eight variables showed statistically significant differences in the perceived level of influence between the two groups. Specifically, international student pilots rated word of mouth (mean difference 0.45 and $p < 0.05$), school's website (mean difference 0.55 and $p < 0.05$), internet sources (mean difference 0.53 and $p < 0.05$), social media (mean difference 0.43 and $p < 0.05$), and conventional media (mean difference 0.56 and $p < 0.05$) significantly higher than their domestic counterparts.

Table 2-a

T-Test Results for the Perceived Level of Influence of Marketing Communication Approaches Between Domestic and International Student Pilots (N = 201)

	Domestic		Int.		t	df	Sig. (2-tailed)
	M	SD	M	SD			
Contact with CFIs	3.78	1.25	3.68	1.18	0.45	199.00	0.65
Contact with staff	3.59	1.17	3.80	0.90	-1.23	87.59	0.22
Word of mouth	3.41	1.38	3.86	1.05	-2.34	89.03	0.02*
Campus visits	3.31	1.34	3.36	1.22	-0.23	199.00	0.82
School's website	3.15	1.45	3.70	1.13	-2.68	86.32	0.01*
Other internet sources	2.90	1.35	3.43	1.15	-2.40	199.00	0.02*
Social media	2.50	1.26	2.93	1.21	-2.04	199.00	0.04*
Conventional media	1.80	1.15	2.36	1.20	-2.84	199.00	0.00*
Sample Size	n = 157		n = 44				

Note. Likert scale: 1 = not influential at all, 5 = extremely influential.

* $p < 0.05$

Research Question 2-b

Is there a significant difference in the perceived level of influence of marketing communication approaches on flight school choice decisions between Part 61 school and Part 141 school student pilots?

Table 2-b illustrates t-test results for the perceived influence of marketing communication approaches on flight school selections between Part 61 school and Part 141 school student pilots. Three out of eight variables showed statistically significant differences in the perceived level of influence between the two groups. Specifically, Part 61 school student pilots rated contact with CFIs (mean difference 0.36 and $p < 0.05$) significantly higher than their Part 141 school counterparts; Part 141 school student pilots rated campus visits (mean difference 0.61 and $p < 0.05$) and conventional media (mean difference 0.37 and $p < 0.05$) significantly higher than their Part 61 school counterparts.

Table 2-b

T-Test Results for the Perceived Level of Influence of Marketing Communication Approaches Between Part 61 School and Part 141 School Student Pilots (N = 201)

	Part 61		Part 141		t	df	Sig. (2-tailed)
	M	SD	M	SD			
Contact with CFIs	3.91	1.24	3.55	1.20	2.10	199.00	0.04*
Contact with staff	3.58	1.21	3.71	0.98	-0.82	197.78	0.41
Word of mouth	3.42	1.35	3.64	1.28	-1.18	199.00	0.24
Campus visits	3.06	1.34	3.67	1.20	-3.36	199.00	0.00*
School's website	3.23	1.49	3.34	1.28	-0.57	195.05	0.57
Other internet sources	2.99	1.37	3.05	1.26	-0.29	199.00	0.77
Social media	2.50	1.27	2.71	1.24	-1.14	199.00	0.26
Conventional media	1.77	1.11	2.14	1.24	-2.25	199.00	0.03*
Sample Size	n = 115		n = 86				

Note. Likert scale: 1 = not influential at all, 5 = extremely influential.

* $p < 0.05$

Research Question 2-c

Is there a significant difference in the perceived level of influence of marketing communication approaches on flight school choice decisions between male and female student pilots?

Table 2-c presents t-test results for the perceived influence of marketing communication approaches on flight school selections between male and female student pilots. Overall, no significant difference was observed in the perceived level of influence between the two groups.

Table 2-c

T-Test Results for the Perceived Level of Influence of Marketing Communication Approaches Between Male and Female Student Pilots (N = 201)

	Male		Female		t	df	Sig. (2-tailed)
	M	SD	M	SD			
Contact with CFIs	3.79	1.21	3.52	1.42	1.02	199.00	0.31
Contact with staff	3.61	1.11	3.84	1.18	-0.97	199.00	0.33
Word of mouth	3.54	1.30	3.32	1.46	0.78	199.00	0.44
Campus visits	3.34	1.30	3.24	1.45	0.34	199.00	0.74
School's website	3.31	1.40	3.00	1.41	1.04	199.00	0.30
Other internet sources	3.07	1.33	2.64	1.19	1.52	199.00	0.13
Social media	2.59	1.28	2.60	1.15	-0.03	199.00	0.97
Conventional media	1.91	1.18	2.04	1.21	-0.52	199.00	0.60
Sample Size	n = 176		n = 25				

Note. Likert scale: 1 = not influential at all, 5 = extremely influential.

Research Question 2-d

Is there a significant difference in the perceived level of influence of marketing communication approaches on flight school choice decisions among student pilots with different annual incomes (personal income or household income if supported by family)?

Table 2-d provides one-way ANOVA test outcomes for the perceived influence of marketing communication approaches on flight school selections among student pilots with

different annual incomes. When a significant difference was detected in the ANOVA tests, the Tukey post-hoc test was applied to examine every pair-wise comparison.

The ANOVA test results showed a significant difference in the influence of contact with school staff, $F(4, 196) = 3.02, p < 0.05$, between the five groups. As this significant difference was detected, Tukey post-hoc tests were conducted to examine the significant differences in the value of contact with school staff scores between the categories of annual incomes. The post-hoc test results showed that student pilots who earned an annual income between \$75,001-\$100,000 rated contact with school staff significantly higher (mean difference 0.81 and $p < 0.05$) than student pilots who earned under \$25,000.

Table 2-d

ANOVA Test Outcomes for the Perceived Level of Influence of Marketing Communication

Approaches Among Student Pilots with Different Annual Incomes (N = 201)

	Under \$25,000 ^a		\$25,001-\$50,000		\$50,001-\$75,000		\$75,001-\$100,000 ^a		Higher than \$100,000		F-ratio	Sig.
	M	SD	M	SD	M	SD	M	SD	M	SD		
Contact with CFIs	3.72	1.10	3.76	1.32	3.96	1.22	3.76	1.43	3.53	1.16	0.58	0.68
Contact with staff	3.19	1.23	3.78	1.11	3.73	1.03	4.00	1.07	3.62	0.99	3.02	0.02*
Word of mouth	3.30	1.40	3.46	1.31	3.78	1.20	3.69	1.39	3.38	1.33	0.99	0.41
Campus visits	2.98	1.29	3.35	1.37	3.36	1.33	3.52	1.24	3.56	1.28	1.25	0.29
School's website	3.23	1.35	3.17	1.48	3.27	1.44	3.59	1.27	3.21	1.45	0.44	0.78
Other internet sources	2.83	1.22	3.00	1.51	3.24	1.43	3.03	1.15	2.97	1.19	0.58	0.68
Social media	2.49	1.28	2.57	1.29	2.51	1.29	2.72	1.28	2.76	1.18	0.36	0.83

Conventional media	1.72	0.93	2.02	1.34	2.00	1.30	2.14	1.22	1.79	1.07	0.80	0.52
Sample Size	$n = 47$		$n = 46$		$n = 45$		$n = 29$		$n = 34$			

Note. Likert scale: 1 = not influential at all, 5 = extremely influential.

For ANOVA tests: $df_1 = 4$; $df_2 = 196$.

^a Based Tukey post-hoc tests which examined the significant differences in the value of contact with school staff scores between the categories of annual incomes;

mean difference 0.81 and $p < 0.05$.

* $p < 0.05$.

Research Question 2-e

Is there a significant difference in the perceived level of influence of marketing communication approaches on flight school choice decisions among student pilots of different ages?

Table 2-e shows one-way ANOVA test results for the perceived influence of marketing communication approaches on flight school selections among student pilots of different ages. Once a significant difference was detected in the ANOVA tests, the Tukey post-hoc test was applied to examine every pair-wise comparison. Overall, no significant difference was observed in the perceived level of influence between the five groups.

Table 2-e*ANOVA Test Results for the Perceived Level of Influence of Marketing Communication**Approaches Among Student Pilots of Different Ages (N = 201)*

	18 or younger		19-24		25-34		35-44		45 or older		F-ratio	Sig.
	M	SD	M	SD	M	SD	M	SD	M	SD		
Contact with CFIs	3.49	1.10	3.81	1.20	3.82	1.36	4.05	1.15	3.40	1.67	0.99	0.41
Contact with staff	3.40	1.16	3.57	1.15	3.91	1.03	3.55	1.10	4.00	1.00	1.58	0.18
Word of mouth	3.31	1.33	3.60	1.39	3.66	1.23	3.30	1.42	3.20	1.10	0.71	0.58
Campus visits	3.40	1.36	3.33	1.37	3.32	1.18	3.35	1.46	2.40	1.14	0.65	0.63
School's website	3.11	1.45	3.44	1.31	3.16	1.53	3.45	1.23	2.80	1.48	0.73	0.58
Other internet sources	2.64	1.35	3.09	1.36	3.11	1.25	3.15	1.31	3.60	1.14	1.33	0.26
Social media	2.60	1.27	2.57	1.23	2.63	1.34	2.55	1.28	2.60	1.14	0.02	1.00
Conventional media	1.64	1.03	2.09	1.29	1.95	1.13	1.90	1.21	1.80	1.10	1.04	0.39
Sample Size	<i>n</i> = 45		<i>n</i> = 75		<i>n</i> = 56		<i>n</i> = 20		<i>n</i> = 5			

Note. Likert scale: 1 = not influential at all, 5 = extremely influential.

df1 = 4. df2 = 196.

Research Question 2-f

Is there a significant difference in the perceived level of influence of marketing communication approaches on flight school choice decisions among student pilots with different education levels?

Table 2-f demonstrates one-way ANOVA test results for the perceived influence of marketing communication approaches on flight school selections among student pilots with different education levels. Once a significant difference was detected in the ANOVA tests, the

Tukey post-hoc test was applied to examine every pair-wise comparison. Overall, no significant difference was observed in the perceived level of influence between the five groups.

Table 2-f

ANOVA Test Results for the Perceived Level of Influence of Marketing Communication Approaches Among Student Pilots with Different Education Levels (N = 201)

	Some high school		High school graduate		Some college		Bachelor's degree		Graduate degree or higher		F-ratio	Sig.
	M	SD	M	SD	M	SD	M	SD	M	SD		
Contact with CFIs	3.58	1.06	3.58	1.24	4.06	1.04	3.76	1.33	3.57	1.50	1.21	0.31
Contact with staff	3.50	1.14	3.68	1.23	3.68	1.22	3.70	1.01	3.43	1.03	0.34	0.85
Word of mouth	3.46	1.25	3.35	1.53	3.78	1.18	3.41	1.39	3.57	1.08	0.78	0.54
Campus visits	3.46	1.25	3.48	1.38	3.24	1.42	3.30	1.32	3.14	1.01	0.34	0.85
School's website	3.00	1.47	3.33	1.46	3.16	1.35	3.47	1.41	3.14	1.35	0.69	0.60
Other internet sources	2.71	1.49	3.03	1.35	2.90	1.37	3.24	1.29	2.90	1.00	0.94	0.44
Social media	2.33	1.27	2.88	1.30	2.56	1.25	2.68	1.24	2.14	1.20	1.53	0.20
Conventional media	1.71	1.08	2.00	1.36	2.02	1.22	1.80	1.07	2.19	1.17	0.76	0.55
Sample Size	<i>n</i> = 24		<i>n</i> = 40		<i>n</i> = 50		<i>n</i> = 66		<i>n</i> = 21			

Note. Likert scale: 1 = not influential at all, 5 = extremely influential.

df1 = 4. df2 = 196.

Discussion and Conclusion

The study revealed that the demographic profile of international student pilots who enrolled in vocational flight schools for their initial pilot programs made up 21.9% of the sample. A study conducted in 2012 by Lutte et al. (2014) found that the number of international students pursuing commercial pilot programs in the U.S. represented about 45%. Although Lutte et al.'s (2014) study did not specify which type of schools the study participants attended (e.g., Part 61 schools¹, Part 141 schools, collegiate institutions that provide pilot training programs), to maximize marketing efforts, it remains worthwhile that future studies use a similar survey instrument to comprehensively understand how school's various marketing communication approaches influence both international and domestic students to enroll in the school for higher-level pilot programs.

Additionally, this study's results showed more male student pilots (87.6%) than females (12.4%). Mastekaasa and Smeby (2008) reported that a large percentage of the student population in technical and engineering programs are male students. It is commonly acknowledged that the pilot career has been a male-dominated field (Mitchell et al., 2006). Indeed, International Air Transport Association (IATA, 2022) did reveal that the number of active female airline pilots only accounted for 4% of the total airline pilot workforce. In the U.S., the FAA's (n.d.) Estimated Active Airmen Certificates Held and Women Airmen Certificates Held, in *Active Civil Airmen Statistics* of 2022 also reported a similar rate: 4.9% of gender diversity in terms of the female airline pilot workforce. Accordingly, to best allocate flight

¹ Part 61 flight schools can only enroll non-U.S.-citizen students for vocational pilot training when they are currently in the U.S. and with specific immigration documents (check with U.S. Department of Homeland Security for details).

school marketing resources, based on Paulsen's (1990) proposal, the marketers should be particularly aware of primary and secondary target market segments.

Nevertheless, on the other hand, IATA (2022) declared that it is impossible to cope successfully and effectively with the upcoming aviation industrywide professional labor shortages if not capable of improving gender diversity. IATA (n.d.) cited and highlighted McKinsey & Company's report *Women in the Workplace 2021*: "when women are well represented at the top, companies are 50% more likely to outperform their peers" (Background section para. 2). To improve gender diversity in the pilot workforce, implementing effective recruitment strategies by thoroughly understanding various market segments/sub-demographic profiles of female students' perceptions about flight school marketing communication approaches can be a tactic. However, the current study's findings in this regard had to be limited due to a small sample size of 25 female-student-pilot participants. Therefore, future research is recommended to adapt the current study's model and include a larger female sample size to further specify the relationships between female students' diverse sub-demographic profiles/market segments and various marketing approaches that influence them to enroll in flight schools.

In addition to the gender factor that greatly affects students' decisions for their vocational education, Jivasantikarn (2003) also emphasized age as one main personal factor, as Kotler and Fox (1995) explained that consumers' "wants and capacities" are influenced by age (p. 217). As seen in the findings of this study, the age profile of 19-24 accounted for 37.3% which was the largest percentage of the age profiles of the sample, followed by 25-34 years of age which accounted for 27.9%. These findings were consistent with Maringe and Gibbs' (2008) study of marketing in higher education in which they identified the following two key market segments:

age profiles 18-24 and 25-35. Maringe and Gibbs (2008) noted that the majority of higher education students fall between the ages of 18-24; these students are the typical high school graduates continuing to further their education. In addition, Maringe and Gibbs (2008) observed that students who fall between 25-35 years of age are gaining focus in the market, as this group of students *want to* and are *capable of* pursuing higher education.

Regarding the influence of marketing communication approaches on student pilots' vocational school choices, this study found that contact with CFIs and contact with staff were rated as the two most influential approaches. In contrast, Mahajan and Golahit (2017), who specified marketing technical programs for universities, found that students rated these *school personnel* contact marketing approaches as relatively less influential approaches; instead, the school's website had the most influence.

When compared to other educational fields, private pilot programs require a unique *personalized* education style because most of the class time for student and instructor is spent on practical flight learning in the air, sitting very close in the training aircraft. Students' safety depends upon their instructors. Furthermore, to become a qualified airline pilot, a student has to undergo different training stages. Choosing a suitable flight school could be a complex process and a challenging task, especially for prospective students who are not acquainted with pilot training schools and flight learning dynamics. Understandably, prospective students expect the school to appoint an instructor whose "personality, attributes, and teaching styles" best suit their own (Aircraft Owners and Pilots Association, 2012, p. 14), and this study's findings revealed that they heavily depend upon *personal* contact with CFIs and staff, word of mouth referrals, and visiting campus to access and evaluate school information.

Statistically significant differences in the perceived influence of marketing communication approaches on flight school choice decisions among student pilots with different demographic profiles were mostly identified between domestic versus international students and Part 61 school versus Part 141 school students. Specifically, significant differences suggested that international student pilots appreciated internet/media-based approaches (e.g., school's website, other internet sources, and social media) and conventional media approaches (e.g., radio, television, and print) more than their domestic counterparts. Such a finding may suggest that international student pilots have less flexibility to access school personnel/personal contact marketing approaches which may be due to geographic barriers. Hence, flight schools should take advantage of media-based marketing technology and adopt suitable platforms when reaching prospective students who are from different countries or regions.

In addition, significant differences in the results suggested that contact with CFI as a marketing approach had a greater influence on Part 61 school students than on their Part 141 school counterparts. Therefore, Part 61 schools should make use of instructor resources during the marketing and recruiting process, such as assigning proper instructors as recruiters and career consultants to introduce the school and its programs to the market and interact with the inquiring potential students.

Part 141 school student pilots emphasized that the campus visit marketing approach was significantly more influential on their school choice than that of Part 61 school counterparts. Brown's (2010) study as cited in College Boarding Pass (n.d.), which investigated students' experiences of choosing a university, also identified the effectiveness of campus visits when the school uses it as a marketing and recruitment practice. Brown (2010) found that campus visits—whether formal or informal—such as an open house, trying a class and interacting with school

members, and weekend visits, affected the visiting students' enrollment decisions nearly twice as much as those who did not visit the campus prior to enrolling. Researchers from the relevant field proposed that the core for a successful campus visitation includes guiding visiting students and their accompaniers to engage in the school's "overall campus environment—the ecology, climate, and culture of the institution" (Secore, 2018, p. 154) and guiding them to interact with school members, who would be able to make students feel a strong sense of belonging to that particular institution (Okerson, 2016).

Author Note

The author alone is responsible for the content of this research. This research does not represent the official opinion of the Aircraft Owners and Pilots Association (AOPA).

References

- Aircraft Owners and Pilots Association. (2012). *Field guide to flight training: Flight schools*.
<http://download.aopa.org/asf/efirc/SchoolsFieldGuide.pdf>
- Alfattal, E. (2017). International students' college choice is different! *The International Journal of Educational Management*, 31(7), 930-943. <https://doi.org/10.1108/IJEM-05-2016-0095>
- Becker, H., & Cunningham, C. (2017, July 5). *Pilot retirements accelerate beginning in 2021 and peak in 2025*. Cowen and Company.
https://static01.nyt.com/files/2018/business/Pilot_Retirements_Accelerate_Beginning_In_2021_Peak_In_2025_Cowen_and_Company.pdf
- Boeing. (2022). *Pilot and Technician Outlook 2022–2041*.
<https://www.boeing.com/resources/boeingdotcom/market/assets/downloads/2022-Pilot-Technician-Outlook.pdf>
- Burns, N., & Grove, S. K. (1993). *The practice of nursing research conduct, critique, and utilization* (2nd ed.). WB Saunders Company.
- College Boarding Pass. (n.d.). *Importance of a campus visit when searching for the best fit college*. Retrieved April 26, 2022, from <https://collegeboardingpass.org/campus-visits-best-fit-college/>
- Epperson, L. (2012). Bringing the market to students: School choice and vocational education in the twenty-first century. *Notre Dame Law Review*, 87(5), 1861-1890.
<https://scholarship.law.nd.edu/cgi/viewcontent.cgi?article=1039&context=ndlr>
- Hemsley-Brown, J., & Oplatka, L. (2016). *Higher education consumer choice*. Palgrave Macmillan. <https://doi.org/10.1007/978-1-137-49720-8>

International Air Transport Association (2022). *Annual review 2022*.

<https://www.iata.org/contentassets/c81222d96c9a4e0bb4ff6ced0126f0bb/annual-review-2022.pdf>

International Air Transport Association (n.d.). *25by2025-Advancing gender balance by 2025*.

Retrieved November 15, 2022, from <https://www.iata.org/en/about/our-commitment/25-by-2025/>

Jin, J. (2019). *An examination of student pilot school choice factors for flight schools in California* (Publication No. 27670103) [Doctoral dissertation, Alliant International University-San Diego]. ProQuest Dissertations and Theses Global.

Jivasantikarn, K. (2003). *Marketing approaches used by private vocational schools in Thailand* (Publication No. 3087868) [Doctoral dissertation, Illinois State University]. ProQuest Dissertations and Theses Global.

Kazis, R., Callahan, A., Davidson, C., McLeod, A., Bosworth, B., Choitz, A., & Hoops, J. (2007, March). *Adult learners in higher education: Barriers to success and strategies to improve results*. U.S. Department of Labor.

<https://files.eric.ed.gov/fulltext/ED497801.pdf>

Kisiołek, A., Karyy, O., & Halkiv, L. (2021). The utilization of Internet marketing communication tools by higher education institutions (on the example of Poland and Ukraine). *International Journal of Educational Management*, (ahead-of-print).

<https://doi.org/10.1108/IJEM-07-2020-0345>

Kotler, P., & Fox, K. F. A. (1995). *Strategic marketing for educational institutions* (2nd ed.). Prentice-Hall.

Kotler, P. & Keller, K. (2012). *Marketing management* (14th ed.). Prentice Hall.

- Lee, J. B., & Topper, A. M. (2006). The future of proprietary post-secondary education. *On the Horizon*, 14(2), 84-91. <http://dx.doi.org/10.1108/10748120610674058>
- Litten, L. H., Sullivan, D., & Brodigan, D. L. (1983). *Applying market research in college*. College Entrance Examination Board.
- Lutte, R., Higgins, J., Lovelace, K., Bjerke, E., Lounsberry, N., Friedenjohn, D., Pavel, S., & Chase, B., & Craig, P. (2014). An investigation of the United States airline pilot labor supply. *Journal of Air Transport Studies*, 5(2), 53-83. <https://doi.org/10.38008/jats.v5i2.68>
- Mahajan, P. T., & Golahit, S. B. (2017). Incorporating 11 P's of service marketing mix and its impact on the development of technical education. *Journal of Entrepreneurship Education*, 20(2), 1-14. <https://files.eric.ed.gov/fulltext/ED586037.pdf>
- Maringe, F., & Gibbs, P. (2008). *Marketing higher education*. McGraw-Hill Education.
- Martirano, M. (2017). *Impact of various marketing theories and software applications on small colleges* (Publication No. 10259093) [Doctoral dissertation, Northcentral University]. ProQuest Dissertations and Theses Global.
- Mastekaasa, A., & Smeby, J. C. (2008). Educational choice and persistence in male- and female-dominated fields. *Higher Education*, 55(2), 189-202. <https://doi.org/10.1007/s10734-006-9042-4>
- Meyer, S. L. (2019). *Choosing to attend a public two-year college: A survey of student decision making* (Publication No. 2356802419) [Doctoral dissertation, University of Georgia]. ProQuest Dissertations and Theses Global.
- Military pilot shortage: Hearing before the Subcommittee on Military Personnel of the Committee on Armed Services*, 115 Cong. (2017). U.S. Government Publishing Office.

<https://www.govinfo.gov/content/pkg/CHRG-115hrg25095/html/CHRG-115hrg25095.htm>

Mitchell, J., Kristovics, A., & Vermeulen, L. (2006). Gender issues in aviation: Pilot perceptions and employment relations. *International Journal of Employment Studies*, 14(1), 35–59.

Okerson, J. R. (2016). *Beyond the campus tour: College choice and the campus visit*.

(Publication No. 10111579) [Doctoral dissertation, The College of William & Mary in Virginia]. ProQuest Dissertations and Theses Global.

Osborne, M., Marks, A., & Turner, E. (2004). Becoming a mature student: How adult applicants weigh the advantages and disadvantages of higher education. *Higher Education*, 48(3), 291–315. <https://doi.org/10.1023/B:HIGH.0000035541.40952.ab>

Panacek, E. A., & Thompson, C. B. (2007). Sampling methods: Selecting your subjects. *Air Medical Journal*, 26(2), 75-78. <https://doi.org/10.1016/j.amj.2007.01.001>

Paulsen, M. B. (1990). *College choice: Understanding student enrollment behavior*. ASHE-ERIC Higher Education Report No. 6. The George Washington University.

<https://files.eric.ed.gov/fulltext/ED333855.pdf>

Secore, S. (2018). The significance of campus visitations to college choice and strategic enrollment management. *Strategic Enrollment Management Quarterly*, 5(4), 150-158.

<https://doi.org/10.1002/sem3.20114>

U.S. Federal Aviation Administration. (2022, June). *FAA aerospace forecast: Fiscal years 2022-2042*. U.S. Department of Transportation. https://www.faa.gov/sites/faa.gov/files/2022-06/FY2022_42_FAA_Aerospace_Forecast.pdf

U.S. Federal Aviation Administration (FAA). (n.d.). *U.S. civil airmen statistics*. U.S. Department of Transportation. Retrieved MS Excel of 2016, 2017, 2018, & 2022

https://www.faa.gov/data_research/aviation_data_statistics/civil_airmen_statistics/

U.S. Government Accountability Office. (2014, February). *Aviation workforce: Current and future availability of airline pilots* (Report No. GAO-14-232).

<https://www.gao.gov/assets/670/661243.pdf>

U.S. Government Accountability Office. (2011, November). *Initial pilot training, better management controls are needed to improve FAA oversight* (Report No. GAO-12-117).

<https://www.gao.gov/assets/590/586130.pdf>