

A REVIEW OF MINORITY RECRUITMENT
PROGRAMS IN AVIATION
EDUCATION PROGRAMS

BY

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Submitted to the Faculty of the
Graduate College of the
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in partial fulfillment of
the requirements for
the Degree of
DOCTOR OF EDUCATION
December, 2007

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ACKNOWLEDGMENTS

I wish to express my sincere thanks and appreciation to Dr. Steve Marks, my dissertation committee chairperson and my adviser, for his expertise, guidance, encouragement, and above all patience in helping me complete this dissertation. Dr. Marks, I could not have done this without you. Thanks to Dr. Cecil Dugger, Dr. Mary Kutz and Dr. James Key for their advice and guidance in the completion of this study. Special thanks to Dr. H. C. "Mac" McClure for getting me started in pursuing a doctoral degree and to his lovely wife Jane for all of the reading and correcting of papers she did for me while completing this degree.

Special thanks to my children, Clarence Keith, his wife, Cynthia, Donald Eugene, his wife, Tonisha, Katherine Nicole and her husband, Torail, for just being great kids. When asking all of you for any advice, you answered without hesitation. You always wanted nothing but the best for me. I love you lots! To my grandchildren, Marcus and his wife, Shelby, Kayla, Donald, Jr., Desmond, Kaci, Imani, Nasir, Kameron and Kiyah, what would this world be without grandchildren? I thank you all so much for putting up with Mam-maw being irritable a lot and not playing with you as I always do when you visit. I have been so busy so please forgive me for not making my regular visits. I love you guys so much. Thanks to my parents, my father, the late Reverend C. L. Potter, and my mother Vera Potter for teaching me that everything is possible through God first and then hard work. They taught me nothing worth having comes easy. I truly love you.

Thanks to my brothers, James and Rev. M. C. Potter, and to my sisters, Connie and Cecilia, for always having my back. You always encouraged me to keep on pursuing this paper while going through some rough times.

I dedicate this dissertation to my spouse of 41 years, Dr. Clarence A. Hedge, for his love, understanding and patience while I was completing this paper. We have enjoyed some very good times and some not so good times but we made it through. I thank you for staying on me and reminding me that regardless of what happens, this paper should be first and completed within a reasonable length of time. I love you!

My final thank you goes to God for my health, strength and endurance for getting this done, which has been a dream of mine since I started.

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CHAPTER I

INTRODUCTION

United States airlines carried 451.7 million scheduled domestic and international passengers during the first seven months of 2007, a record for the January-July period. They operated 6.2 million domestic and international flights in that same time period. Revenue passenger miles for the first seven months of 2007 amounted to 347.8 billion (U.S. Department of Transportation RITA, 2007). Flying has become a way of life for Americans, and more than eight million people are employed in aviation, aerospace, and air transportation (National Academy of Sciences, 1997).

Members of minority racial groups have made significant contributions to aviation since its early days. Elwood R. “Pete” Quesada, a Hispanic, had a distinguished flying career in both World War I and World War II, becoming a Lieutenant General in the Air Force, and later the first head of the Federal Aviation Administration (FAA) (Garamone, 2000). Native American John Bennett Herrington, a registered Chickasaw, was a mission specialist on the space shuttle *Endeavour* in 2002 (“First Native American,” 2003). Ellison Onizuka, an Asian-American, was one of the astronauts who died in the *Challenger* disaster in 1986 (NASA 2007). Daniel “Chappie” James, Jr., who trained pilots for the all-Black 99th Pursuit Squadron in World War II, was the first African American to become a four-star general (Aeronautics Learning Laboratory, 2004). Movies have been made about the famed Tuskegee Airmen, 994 African-

American pilots trained at Tuskegee Army Airfield, on whose website they are memorialized as follows: “The outstanding record of black airmen in World War II was accomplished by men whose names will forever live in hallowed memory” (*Tuskegee Airmen, Inc.*, 2006). Yet, even in the 21st century, the percentage of minorities in pilot positions has not nearly kept up with the percentage of these minorities in the general population.

The enrollment for minority students in U. S. colleges and universities has increased from two million to four million in the last 5 years. The total number of students enrolled in the nation’s colleges and universities totaled 17, 272,000. Sixty-Two percent were enrolled in 4 year institutions and 38% were enrolled in 2 year institutions. Total minority enrollment at the nation’s colleges and universities rose by nearly 1.5 million students (52 %) to more than 4.3 million (American Council on Education, 2003). In the 1976-2004 study, minority students made up a greater proportion of the student body at 4-year institutions than at 2-year institutions (U.S. Dept. of Education, 2006) (Table I).

This study was done to determine what causes minorities to have such poor representation in the aviation field, particularly in the professional pilot programs.

TABLE I

Table 206 Total fall enrollment in degree-granting institutions, by race/ethnicity of student and type and control of institution:
Selected years, 1976 through 2005

Race/ethnicity of student and type and control of institution	Fall enrollment (in thousands)										Percentage distribution of students									
	1976	1980	1990	2000	2002	2003	2004	2005	2005	2005	1976	1980	1990	2000	2002	2003	2004	2005		
All students, total	10,985.6	12,086.8	13,818.6	15,312.3	16,611.7	16,900.5	17,272.0	17,487.5	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0		
White	9,076.1	9,833.0	10,722.5	10,462.1	11,140.2	11,275.4	11,422.8	11,495.4	82.6	81.4	77.6	68.3	67.1	66.7	66.1	66.7	66.1	65.7		
Total minority	1,909.8	1,948.8	2,704.7	4,321.5	4,880.5	5,033.2	5,259.1	5,407.2	15.4	16.1	19.6	28.2	29.4	29.8	30.4	30.4	30.9	30.9		
Black	1,033.0	1,106.8	1,247.0	1,730.3	1,978.7	2,068.9	2,164.7	2,214.6	9.4	9.2	9.0	11.3	11.9	12.2	12.5	12.5	12.7	12.7		
Hispanic	383.8	471.7	782.4	1,461.8	1,661.7	1,716.0	1,809.6	1,882.0	3.5	3.9	5.7	9.5	10.0	10.2	10.5	10.8	10.8	10.8		
Asian/Pacific Islander	197.9	286.4	572.4	978.2	1,074.2	1,075.7	1,108.7	1,134.4	1.8	2.4	4.1	6.4	6.5	6.4	6.4	6.4	6.4	6.5		
American Indian/Alaska Native	76.1	83.9	102.8	151.2	165.9	172.7	176.1	176.3	0.7	0.7	0.7	1.0	1.0	1.0	1.0	1.0	1.0	1.0		
Nonresident alien	218.7	305.0	391.5	528.7	590.9	591.8	590.2	584.8	2.0	2.5	2.8	3.5	3.6	3.5	3.4	3.4	3.4	3.3		
Public	8,641.0	9,456.4	10,844.7	11,752.8	12,752.0	12,857.1	12,980.1	13,021.8	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0		
White	7,094.5	7,656.1	8,385.4	7,963.4	8,490.5	8,531.4	8,546.3	8,518.2	82.1	81.0	77.3	67.8	66.6	66.4	65.8	65.8	65.4	65.4		
Total minority	1,401.2	1,596.2	2,199.2	3,446.3	3,867.4	3,937.7	4,062.4	4,130.8	16.2	16.9	20.3	29.3	30.3	30.6	31.3	31.3	31.7	31.7		
Black	831.2	876.1	976.4	1,319.2	1,487.2	1,533.5	1,574.6	1,580.4	9.6	9.3	9.0	11.2	11.7	11.9	12.1	12.1	12.1	12.1		
Hispanic	336.8	406.2	671.4	1,229.3	1,388.7	1,414.6	1,477.4	1,525.6	3.9	4.3	6.2	10.5	10.9	11.0	11.4	11.4	11.7	11.7		
Asian/Pacific Islander	165.7	239.7	461.0	770.5	851.6	845.2	866.1	881.9	1.9	2.5	4.3	6.6	6.7	6.6	6.7	6.7	6.8	6.8		
American Indian/Alaska Native	67.5	74.2	90.4	127.3	140.0	144.3	144.4	143.0	0.8	0.8	0.8	1.1	1.1	1.1	1.1	1.1	1.1	1.1		
Nonresident alien	145.3	204.2	260.0	343.1	394.1	388.0	371.4	372.8	1.7	2.2	2.4	2.9	3.1	3.0	2.9	2.9	2.9	2.9		
Private	2,344.6	2,630.4	2,973.9	3,559.5	3,859.7	4,043.4	4,291.9	4,465.6	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0		
White	1,981.6	2,176.9	2,337.0	2,498.7	2,649.8	2,744.1	2,876.5	2,977.3	84.5	82.8	78.6	70.2	68.7	67.9	67.0	66.7	66.7	66.7		
Total minority	289.6	352.7	505.5	875.2	1,013.2	1,095.5	1,196.7	1,276.4	12.4	13.4	17.0	24.6	26.3	27.1	27.9	28.6	28.6	28.6		
Black	201.8	230.7	270.6	411.1	491.6	535.3	590.1	634.2	8.0	8.8	9.1	11.5	12.7	13.2	13.7	14.2	14.2	14.2		
Hispanic	47.0	65.6	111.0	232.5	273.1	301.4	332.2	356.4	2.0	2.5	3.7	6.5	7.1	7.5	7.7	8.0	8.0	8.0		
Asian/Pacific Islander	32.2	46.7	111.5	207.7	222.6	230.5	242.6	252.4	1.4	1.8	3.7	5.8	5.8	5.7	5.7	5.7	5.7	5.7		
American Indian/Alaska Native	8.6	9.7	12.4	23.9	25.9	28.3	31.8	33.3	0.4	0.4	0.4	0.7	0.7	0.7	0.7	0.7	0.7	0.7		
Nonresident alien	73.4	100.8	131.4	185.6	196.8	203.9	218.8	212.0	3.1	3.8	4.4	5.2	5.1	5.0	5.1	5.0	5.1	4.7		

American Indian/Alaska Native	41.2	47.0	54.9	74.7	81.3	82.2	82.2	80.7	1.1	1.0	1.0	1.3	1.2	1.3	1.3	1.2
Nonresident alien	42.2	64.1	67.1	89.0	102.6	96.2	90.9	91.8	1.1	1.4	1.3	1.5	1.6	1.5	1.4	1.4
Public	3,748.1	4,328.8	4,996.5	5,697.4	6,270.4	6,207.6	6,243.6	6,184.2	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
White	2,974.3	3,413.1	3,779.8	3,652.2	3,938.8	3,921.5	3,903.4	3,840.1	79.4	78.8	75.7	64.1	62.8	63.2	62.5	62.1
Total minority	734.5	855.4	1,153.0	1,959.9	2,231.2	2,191.9	2,251.0	2,253.9	19.6	19.8	23.1	34.4	35.6	35.3	36.1	36.4
Black	409.5	437.9	481.4	691.4	804.7	814.8	833.4	826.3	10.9	10.1	9.6	12.1	12.8	13.1	13.3	13.4
Hispanic	207.5	249.8	408.9	809.2	920.5	886.3	921.6	930.0	5.5	5.8	8.2	14.2	14.7	14.3	14.8	15.0
Asian/Pacific Islander	78.2	122.5	210.3	389.2	428.7	413.0	418.6	421.8	2.1	2.8	4.2	6.8	6.8	6.7	6.7	6.8
American Indian/Alaska Native	39.3	45.2	52.4	70.1	77.2	77.8	77.4	75.7	1.0	1.0	1.0	1.2	1.2	1.3	1.2	1.2
Nonresident alien	39.2	60.3	63.6	85.2	100.4	94.2	89.2	90.2	1.0	1.4	1.3	1.5	1.6	1.5	1.4	1.5
Private	131.0	192.6	243.6	251.0	259.0	285.3	302.3	303.8	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
White	102.8	145.4	174.5	151.8	147.7	155.2	160.4	158.4	78.5	75.5	71.6	60.5	57.0	54.4	53.1	52.1
Total minority	25.3	43.5	65.6	95.5	109.1	128.1	140.2	143.8	19.3	22.6	26.9	38.0	42.1	44.9	46.4	47.3
Black	19.8	34.6	42.9	43.5	54.4	65.1	72.5	74.8	15.1	17.9	17.6	17.3	21.0	22.8	24.0	24.6
Hispanic	2.6	5.3	15.3	34.7	38.3	46.2	50.8	51.4	2.0	2.8	6.3	13.8	14.8	16.2	16.8	16.9
Asian/Pacific Islander	0.9	1.8	4.9	12.7	12.3	12.3	12.1	12.6	0.7	0.9	2.0	5.1	4.7	4.3	4.0	4.2
American Indian/Alaska Native	1.8	1.8	2.5	4.5	4.1	4.4	4.9	5.0	1.4	0.9	1.0	1.8	1.6	1.6	1.6	1.6
Nonresident alien	3.0	3.7	3.5	3.8	2.2	2.0	1.7	1.6	2.3	1.9	1.4	1.5	0.9	0.7	0.6	0.5

NOTE: Race categories exclude persons of Hispanic origin. Because of underreporting and nonreporting of racial/ethnic data, some figures are slightly lower than corresponding data in other tables. Data through 1990 are for institutions of higher education, while later data are for degree-granting institutions. Degree-granting institutions grant associate's or higher degrees and participate in Title IV federal financial aid programs. The degree-granting classification is very similar to the earlier higher education classification, but it includes more 2-year colleges and excludes a few higher education institutions that did not grant degrees. (See Guide to Sources for details.) Detail may not sum to totals because of rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, Higher Education General Information Survey (HEGIS), "Fall Enrollment in Colleges and Universities" surveys, 1976 and 1980; and 1990 through 2005 Integrated Postsecondary Education Data System (IPEDS), "Fall Enrollment Survey" (IPEDS-EF:90), and Spring 2001 through Spring 2006. (This table was prepared August 2006.)

Minorities have played an important role in the history of aviation, yet their struggles to become pilots or have a career in aviation were many. Some minorities still have a problem of being prejudged by others as to their intelligence, skills, honesty, motivation and dedication. Many believe that becoming pilots or even being in the field of aviation is not obtainable for minorities, especially inner city minorities.

This study will further analyze available data of the University Aviation Association (UAA) colleges and universities to determine their recruitment procedures in the professional pilot programs and to determine the academic standing of the students presently enrolled in aviation professional pilot programs.

Statement of The Problem

What are the recruitment programs for minorities in professional pilot training programs?

Purpose of The Study

The purpose of the study is (1) to determine the number of minorities in professional pilot programs, (2) to identify minority recruitment programs in aviation and in professional pilot education programs and (3) to determine the perceptions of African American pilots.

Population

The population of this study consisted of (1) University Aviation Association (UAA) college and university aviation department chairpersons and directors, and (2) members of the Black Pilot Association and African American pilots.

Research Questions

The following research questions were identified in this study in order to complete this research:

Research Question One

What are the demographics of aviation department chairpersons and directors at UAA colleges and universities?

Research Question Two

What is the number of students and minority students enrolled in professional pilot education programs in the North East, South East, Central, North West and South West regions in the United States?

Research Question Three

Are minority students in any other aviation related program or programs?

Research Question Four

What are the recruitment programs in UAA colleges and universities aviation departments?

Research Question Five

What are the recruitment programs for minorities in UAA colleges and universities aviation departments?

Research Question Six (Telephone Interviews with African American Pilots)

What are some of the perceived problems as to why there are so few minorities as pilots?

Research Question Seven (Telephone Interviews with African American Pilots)

What could colleges, universities, and minority organizations do to help increase the number of minority students entering into the field of aviation, particularly in the professional pilot education program?

Research Question Number Eight (Telephone Interviews with African American Pilots)

What are the perceived constraints that preclude individuals from entering into an aviation course of study, particularly the professional pilot program?

Scope

The study focused on minority students in professional pilot programs at UAA colleges and universities, African American professional pilot associations, and the perceptions of African American pilots only.

Definitions

The following definitions are used for understanding in this study:

African American – African Americans, during different times in history, were referred to as colored, Negro, or Blacks. Most are descendants of slaves brought to the United States from Africa against their will.

Airmen – The term airmen includes men and women certified as pilots, mechanics, or other aviation technicians.

Asian American – Asian Americans are those individuals residing in the United States whose ancestors, or who themselves, were born in Asian countries.

Diversity – The condition of being different or having difference.

Ethnic – of a population subgroup having a common cultural heritage.

Hispanic – A term referring to all persons who are or whose ancestors were of Spanish, Mexican, Caribbean, Central American, or South American origin who do not classify themselves as African American or Native American (EEOC, 2007).

Minority – A minority is a part of a population differing from others in some characteristics and often subjected to differential treatment (Merriam-Webster, 1996).

Multicultural – A combination of several different cultures.

Native American – Also referred to as American Indians. A person living in America before the Europeans came. They include primitive people who live much as their ancestors did and educated men and women who have adapted to modern life.

CHAPTER II

REVIEW OF LITERATURE

INTRODUCTION

During the 1990's to the 2000's the percentage of minority enrollment in U. S colleges and universities increased by nearly 1.5 million students, an increase of 51.7 % (American Council on Education, 2003). With so many minority students enrolled in colleges and universities today, why are there so few minorities in the field of aviation, particularly in the professional pilot programs? According to the FAA, there are approximately 597,109 active pilots with certificates as of December 31, 2006, including 36,101 active women pilots with certificates (Federal Aviation Administration, 2006) (Table II).

While progress has been made in making aviation opportunities available to minorities since World War II, it is clear there is still room for more progress. The United States Office of Employment predicts that 29% of the United States labor force will be composed of minorities by 2008 (Organization of Black Airline Pilots, 2006).

TABLE II

**ESTIMATED ACTIVE AIRMEN CERTIFICATES HELD
DECEMBER 31, 1997- 2006**

CATEGORY	2006	2005	2004	2003	2002	2001	2000	1999	1998	1997
Pilot--Total	597,109	609,737	618,633	625,011	631,762	612,274	625,581	635,472	618,298	616,342
Student	84,866	87,413	87,910	87,296	85,991	86,731	93,064	97,359	97,736	96,101
Recreational (only)	239	278	291	310	317	316	340	343	305	284
Sport	939	134	NA	NA	NA	NA	NA	NA	NA	NA
Airplane 1/										
Private	219,233	228,619	235,984	241,045	245,230	243,823	251,561	258,749	247,226	247,604
Commercial	117,610	120,614	122,592	123,990	125,920	120,502	121,858	124,261	122,053	125,300
Airline Transport	141,935	141,992	142,160	143,504	144,708	144,702	141,596	137,642	134,612	130,858
Rotorcraft (only) 2/	10,690	9,518	8,586	7,916	7,770	7,727	7,775	7,728	6,964	6,801
Glider (only) 3,4/	21,597	21,369	21,100	20,950	21,826	8,473	9,387	9,390	9,402	9,394
Lighter-than-air 4,5/	5/	5/	5/	5/	5/	5/	5/	5/	5/	5/
Flight Instructor Certificates 6/	91,343	90,555	89,596	87,816	86,089	82,875	80,931	79,694	79,171	78,102
Instrument Ratings 6,7/	309,333	311,828	313,545	315,413	317,389	315,276	311,944	308,951	300,183	297,409
Nonpilot--Total 9/	656,227	644,016	644,016	644,016	644,016	644,016	644,016	644,016	644,016	644,016
Mechanic 9/	323,097	320,293	317,111	313,032	315,928	310,850	344,434	340,402	336,670	332,254
Repairmen 9/	40,329	40,030	39,231	37,248	37,114	40,085	38,208	35,989	52,909	51,643
Parachute Rigger 9/	8,252	8,150	8,011	7,883	8,063	7,927	10,477	10,447	10,459	10,336
Ground Instructor 9/	74,849	74,378	73,735	72,692	73,658	72,261	72,326	71,238	70,334	69,366
Dispatcher 9/	18,610	18,079	17,493	16,955	16,695	16,070	16,340	15,655	14,804	13,967
Flight Navigator	264	298	336	382	431	509	570	642	712	782
Flight Attendant 10/	134,874	125,032	NA	NA	NA	NA	NA	NA	NA	NA
Flight Engineer	55,952	57,756	59,376	61,643	63,681	65,398	65,098	63,891	63,700	62,544

This study will provide guidance for the research related to minorities in the field of aviation, particularly in the professional pilot programs. The review of literature will address recruitment programs, the history of minorities in aviation, history of the CPTP program, history of the University Aviation Association, the roles of the Tuskegee Airmen and the minority pilot programs in recruiting minorities in aviation and the role, if any, of African Americans, Hispanics, Asian Americans, Native Americans and women in the field of aviation.

Minorities

A minority is the smaller in number of two groups. According to Merriam-Webster's dictionary a minority is a population segment that differs as in race from the larger group to which it belongs. The United States has become the home of many minority groups. Today, one in three children nationwide is from an ethnic or racial minority group, one in seven speaks a language other than English at home, and one in 15 was born outside the United States. African Americans make up 12.8% of the total population. Native Americans make up 1% of the total population. Asian Americans make up 4.3% of the total population. Hispanics are the largest minority group and they make up 14.4% of the total population ("Population of the U.S." 2005).

Because of the information above regarding minority percentages as to the total population of the United States, diversity in aviation, as in other college and university majors, is essential. In the past, not many women or members of ethnic minority groups pursued careers in aviation/aerospace or other related aviation career fields. Today in aviation, many employers are actively recruiting women and minorities to create diversity

in the learning and work environment. Minorities and women in aviation face the same challenges as all other candidates when sitting at the interview table. However, they may have had to cross additional hurdles to get there and have additional hurdles once hired. Much progress has been made during the last fifty years, yet some people still see African American pilots, Asian pilots, Hispanic pilots, and others, not just “pilots.” Gender, skin color and culture still cause some to prejudge a pilot’s skills, honesty, motivation and dedication. Since the terrorist attacks of September 11, 2001, pilots of Arabic heritage have faced further discrimination (Minority Issues Report, 2004-2005).

Aviation, specifically professional pilot programs, is clearly one of many areas in which more remains to be done to bring up the low representations of minorities. One should understand why minorities have a low representation in the field of aviation. U. S. airline cockpits have been filled mostly by white males, and white males continue to dominate management and piloting ranks in the industry (National Academy of Sciences, 1997). The facts are clear that minorities--particularly African Americans and women--were just as fascinated as white men were with flying and airplanes from the earliest days. Yet African Americans and women ran into many obstacles. Bessie Coleman, who in 1922 became the first female African American to earn a pilot’s certificate in this country, had to go to France for flight training (Smith, 2007). So did Eugene Bullard, who flew with the French during World War I. The major airlines did not hire a single one of the African American pilots of World War II. It took another 20 years and the Civil Rights movement to achieve that milestone (National Academy of Sciences, 1997).

Colleges and universities have adopted a proactive commitment to student diversity because they are aware that in the 21st century, most new jobs in the economy

will require a postsecondary education, and women and racial/ethnic minorities will compose a majority of the workforce. Many campuses and schools were not prepared for the changes they would undergo as a result of including more racial/ethnic minorities in their student bodies. Considering these facts, diversity must be dealt with in schools. When a school becomes multi-ethnic, changes in the curriculum must be dealt with in a manner that will best serve the students' learning needs. Members of minority groups feel that values considered positive in their culture can be detrimental in the United States corporate workplace (National Academy of Sciences, 1997).

Critical issues that confront educators today in dealing with diversity in schools are:

1. The school system, whether higher education or public, must devote greater attention to helping faculty and teaching assistants develop methods that foster respect for cultural differences and must address the different learning styles (Garcia, 2000).
2. Special programs, and special recruitment programs must be offered in colleges, universities and public schools to improve enrollment, retention, satisfaction, academic success, and cognitive development (Garcia, 2000).
3. Colleges, universities and public schools must have diversity among teachers, administrators, faculty, teachers and staff members (Garcia, 2000).
4. Workshops on college campuses and in public schools should train teachers and staff members that students learn differently according to their ethnic background (Garcia, 2000).

According to Dr. Robert Spinks in his teaching methods class at Oklahoma State University (Fundamentals of Teaching, CIED 5043, Fall, 1998), motivation is the key in teaching and making sure learning is taking place. He further teaches that teachers, through workshops, should be made aware of motivational activities that specifically deal with teaching diverse students.

Special programs must be offered in colleges, universities and in public schools to improve enrollment in certain major areas, retention, satisfaction, and academic success.

African Americans

In Aviation

Most African Americans today are the descendants of slaves, brought to the United States from Africa against their own will. Africans first arrived in the United States as indentured servants in 1619. They brought with them a rich culture and educational heritage. Timbuktu was one of several prominent learning centers in Africa where Africans studied law, history, medicine, and other scholarly subjects. As Africans were brought to America as slaves from 1700 to the 1800's, it appeared as if the African slaves needed education and occupational training. Americans did not know that many of the slaves were educated and trained as engineers. Their inability to speak the language, and to adjust to a new country that was not of their choosing accounted for the appearance of illiteracy (Ploski and Williams, 1989).

In 1960 only about 280,000 African Americans were college graduates; in 1992 the total was well over two million. The high school completion rate for African

Americans increased from 68 % to 76 % over the last 20 years (American Council on Education, 2003).

In the past, high school counselors typically persuaded African American students to pursue more trade-based jobs. They believed that becoming a pilot or even being in the field of aviation was not attainable for inner city children (OBAP, 2007). Because life has a way of imitating art, a large majority of African American children grow up focused on becoming basketball and football players or rap artists. Most of them have never heard, for example, of Eugene Jacques Bullard who was the first African American combat pilot, and had over 25 years of flight experience before the famous Tuskegee Airmen (Eugene Jacques Bullard, 2006).

African American men and women struggled throughout the 1930's to gain the opportunity and right to fly airplanes. Organizations within African American communities supported by white individuals, and aeronautic feats by African Americans working with limited resources all served to challenge the racism and sexism of American society. Despite deep-seated biases and the effects of the Depression, the number of certificated African American pilots increased about tenfold, to 102, between 1930–1941 (Smithsonian Institution Archives, 2006).

“African Americans do not like to give up because they interpret it as ‘selling out’ or surrendering themselves,” according to Greg Hinton, Vice President of talent acquisition at U. S. Cellular and an African-American (American Council on Education, 2003). In her article in *Career Journal*, Pepi Sappal says, “African Americans are caught between two worlds; they try to suppress cultural differences to fit in at work.” Rosanna Durruthy, president and chief talent strategist at Aequus Group believes that “in

suppressing their cultural identity, minorities could be doing themselves a disservice....Not only is it physically and emotionally draining to have two separate identities, but unless you reveal the real you, you may be losing out on opportunities, too. There is a fine line between cultural identity and what others perceive as stereotype” (Minority Issues, 2005).

There is to date only one minority magnet high school for aviation. August Martin High School in Jamaica, New York (named for the first African American pilot to fly for a commercial airline) was created through the cooperative efforts of the Board of Education, community leaders and the aviation industry in an attempt to boost the number of minority pilots in the field (August Martin High School website, 2005).

Tomorrow’s Aeronautical Museum in Compton, California, is a non-profit organization that teaches disadvantaged children to fly planes and helicopters in return for community service. One of those children is Jonathan Strickland, a 14-year-old African American, now the youngest person to solo both a helicopter and airplane on the same day (in Canada where 14 is the legal age to solo); the youngest African-American to solo a helicopter; and the youngest African-American to fly a helicopter roundtrip internationally (Scott, 2006).

Five Historically Black Colleges, Hampton University, Delaware State University, Florida Memorial College, Tennessee State University, and Texas Southern University, are joining Western Michigan University’s College of Aviation in the Diversity in Aviation Consortium to diversify the nation’s aviation workforce. According to Ret. Capt. Daniel Stubbs of Hampton University, “...minority youngsters didn’t see professional aviation as an attainable career path,” (“HBCUs Work to

Diversify,” 2004). The Consortium will use a variety of tools to prepare students for careers in aviation.

Organization of Black Airline Pilots President, M. Perry Jones, encourages Congress to fund a study to evaluate the nation’s supply, demand, and production capacity for airline pilots beyond the year 2000, and the possible advantages of establishing a national aviation training facility at a historically Black institution (OBAP, 2007). The Black Pilots Association is aiming to get young African American students interested in aviation, particularly in the professional pilot programs, and train them to become successful pilots.

African Americans make up only 4% of the entire population of commercial airline pilots (FAA, 2006). Most African American women do not know of Bessie Coleman who was the first African American female to hold a pilot’s certificate. Most African American men are not aware of James Herman Banning, the first African American man to hold a pilot’s certificate. Thomas Cox Allen and James Herman Banning completed the first transcontinental flight by African Americans in September-October 1932 (McCune, 1998).

Most people know about the famous Tuskegee Airmen, but very few know about the struggles they had to endure. The Tuskegee Airmen was the popular name of a group of African American pilots who flew with distinction during World War II as the 332d Fighter Group of the United States Army Air Corps (*Tuskegee Airmen, Inc.*, 2006). From the first graduating class in March 17, 1942 through the last class which graduated June 29, 1946, a total of 926 pilots earned wings. In June 1941, the Tuskegee program officially began with formation of the 99th Fighter Squadron at the Tuskegee Institute, a

highly regarded university founded by Booker T. Washington in Tuskegee, Alabama. The unit consisted of an entire service arm, including ground crew, and not just pilots. After basic training at Moton Field, they were moved to the nearby Tuskegee Army Air Field about 16 KM (10 miles) to the west for conversion training onto operational types. The Airmen were placed under the command of Capt. Benjamin O. Davis, Jr., one of the few African American West Point graduates. The unit received recognition through official channels, and won two Presidential Unit Citations, 744 Air Medals, 150 Distinguished Flying Crosses, 14 Bronze Stars and several Silver Stars. In all, 992 pilots were trained in Tuskegee from 1940 to 1946. About 445 deployed overseas and 150 Airmen lost their lives in training or combat (*Tuskegee Airmen*, 2006).

Ironically, none of the 992 combat qualified graduates of the Tuskegee program were considered to be qualified to be pilots of any major U.S. airline (OBAP, 2007).

In 1976, approximately 80 African American pilots were employed by the nation's major and commuter passenger airlines and freight carriers. By 1986 that number had risen to nearly 400, and today the total is estimated to be 674, including at least 14 African American female pilots (thanks to Bessie Coleman). While the total increase is impressive on the surface, one must realize that there are a total of over 71,000 pilots working for these airlines. The struggle to expand African American pilots' presence in the face of unfair hiring/retention practices continues to be an uphill effort, and promises to become increasingly difficult as the generation of African American pilots (hired in the 60's) has already begun to reach mandatory retirement age. Additionally, the military, which serves as a traditional source of airline pilots, especially African American pilots, is rapidly being downsized (OBAP, 2007).

There are several organizations committed to help increase the awareness and number of African American pilots in America, such as Black Airline Pilots, Black Pilot Association, Tuskegee Airline Pilots, The Black Aviators, and other minority organizations in different states with Black Pilot Associations. These organizations were formed to address the issues facing African Americans in being hired as pilots in major airline companies (OBAP, 2007).

Civilian Pilot Training Program Impact Upon Minorities

The Civilian Pilot Training Program (CPTP) was unveiled on December 27, 1938 by President Roosevelt, arguably one of the most innovative presidents in United States history. From 1939 to 1946, President Roosevelt instituted the Civilian Pilot Training Program CPTP (Pisano, 1993). In the years preceding World War II, several European countries, particularly Italy and Germany, began training thousands of young people to become pilots. In the United States the Aeronautics Act of 1938 contained language authorizing and funding a trial program, for what would evolve into the CPTP program. The CPTP was designed to train pilots quickly because of the war and because of being faced with a shortage of aviation professionals. This program would provide needed training to 20,000 college students a year. Some of the training was based in flight schools at African American colleges (Bilstein, 1994). C. Alfred “Chief” Anderson became the first African American instructor at the CPTP at Tuskegee, Alabama. He was at Tuskegee when America entered World War II, and helped prepare the nation’s first African American combat pilots, known as the Tuskegee Airmen (*Tuskegee Airmen*, 2006).

The CPTP program was phased out in the summer of 1944 but not before 435,165 people, including hundreds of women and African-Americans, had been taught to fly. The CPTP admirably achieved its primary mission, best expressed by the title of aviation historian Pisano's book – *To Fill the Skies with Pilots* (1993).

This program was the government's first attempt to use American colleges and universities as settings for training large numbers of pilots. The CPTP was a multipurpose program conceived by Robert H. Hinckley, head of the Civil Aeronautics Authority. The program was to serve as a New Deal economic panacea for private flying, which was then a neglected segment of the aviation industry (Pisano, 1993). It was also a means of preparing American youth for the emerging aviation age. The CPTP lived out its purpose despite having a few problems. Since it was based on civilian goals, the CPTP often received criticism from the military for not contributing to the World War II effort.

Asian Americans In Aviation

The 2000 census reported 12.3 million people who reported themselves as having either full or partial Asian heritage. This is about 4.3% of the U. S. population (U.S. Census Bureau, 2007). Asian Americans are those individuals residing in the United States whose ancestors, or who themselves, were born in Asian countries. Asian Americans have been in the United States for 150 years. The term Asian American was popularized by civil rights movement activists in the 1960's. Such denomination underlined the common plight of all Asians in the United States and gave Asian Americans more prominence on the political scene. In the United States, this term widely

replaced "Oriental," to describe East Asian people regardless of nationality, upbringing, or origin. To many people, the term "Oriental" is often seen as an unfriendly, even derogatory term. ADI, the Asian Diversity website (2007), cites the *Merriam-Webster New World Dictionary's* definition of Oriental when applied to a person as often disparaging.

Asian Americans have played an important part in aviation. They encountered the same struggles as all minorities in entering the field of aviation. Traits such as modesty and humility—valued by Asians—can be misinterpreted as weakness or low self esteem in the United States (Minority Issues Report, 2005). Asian Americans are often bilingual. With airlines expanding operations around the world, being able to speak to ground workers on the ramp in their native tongue enhances the image of pilots and gets more things accomplished for them and their company (American Council on Education, 2003).

The first Asian American woman pilot was Katherine Cheung who left China to study music in Los Angeles. Her fascination with flying led her to take flying lessons at age 26, going on her first solo flight after only 12.5 hours of instruction. Another famous Asian American pilot is Major Arthur Chin who enrolled in flight school in 1932. In 1939 his plane was hit by enemy aircraft fire and crashed. Chin was severely burned; nevertheless, after several surgeries he returned to China to fly supplies over the Himalayas. Chin is recognized as America's first ace in World War II (YellowBridge, 2006). Ellison Onizuka, an Asian-American from Hawaii, was one of the astronauts who died in the *Challenger* disaster in 1986 (NASA, 2007).

Hispanics In Aviation

The fastest growing minority group population in the United States today is the Hispanic Americans. Based on Census Bureau statistics, the media recently reported that Hispanics have surpassed Blacks or African Americans and are officially the nation's largest minority group. The U. S. population is now over 14% Hispanic ("Population of the U.S." 2005).

The Equal Employment Opportunity Commission (EEOC) defines Hispanics as "All persons of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture origin regardless of race" (EEOC website, 2007).

Many public school districts and colleges and universities have, or will have, a school population in which the majority first language is not English. This includes Hispanics and Asian Americans. The Bilingual Education Act of 1968 marked a new outlook toward Americans whose mother tongue was not English (Ovando & Collier, 1985). Hispanic Americans have made great strides in educational attainment since 1970 but continue to lag behind the rest of the nation.

The immigration law of 1917 stated that all adult immigrants were required to read and write at least one language. Many Hispanic children are not learning to read and write. Almost half do not graduate from high school or they are below grade level. At best, the lack of education condemns people to a life of menial jobs and poverty. According to the Department of Education, 37% of Hispanics do not finish high school compared to the national average of 15%. The true experts who deal with children and educational issues daily agree that Hispanics in this country are in a state of crisis. The Hispanic population will double from approximately 35 million to 63 million by 2030.

The modern economy requires a well-educated labor force. If children are not well educated, where will companies find their productive employees tomorrow? (Rodriguez-Valladares, 2002).

The most serious educational problem in the Hispanic population today is language proficiency. Many Hispanic immigrants to the U. S. are illiterate in Spanish, which makes learning English a daunting task. “Uneducated parents are not in a good position to know what the best education for their kids should be despite the fact they want a good education for their children,” according to Mr. Ronald Blackburn-Moreno (Rodriguez-Valladares, 2002), president and CEO of ASPIRA Association, Inc., an organization dedicated to helping Hispanic students.

In order to help solve the problem for educational attainment in the Hispanic population, Leslie Sanchez, executive director of the White House Initiative on Education Excellence for Hispanic Education, believes that the President’s goal for his Commission on Educational Excellence for Hispanic Americans will ensure educational achievement for closing the gap by raising the expectations for Hispanic families and providing the tools needed to increase their education attainment (Rodriguez-Valladares, 2002).

Hispanics have made great strides and contributions to the aviation/aerospace industry because of numerous organizations that encourage and promote the advancement of Hispanics in all aviation/aerospace career fields and interests.

The Aztec Eagles is an organization that encourages Hispanics to consider the field of aviation. Originally, the Aztec Eagles were Hispanic or Mexican fighter pilots of Squadron 201. More than 300 Aztec Eagles, who were attached to the U. S. Army’s 5th Air Force’s 58th Fighter Group during the liberation of the main Philippine island of

Luzon in the summer of 1945. Pilots flew P-47D “thunderbolt” single seat fighter aircraft carrying out tactical air support missions, and played a pivotal role in defeating the Japanese war machine in the Philippines during World War II. In 2003 ten of the original Aztec flyers were still alive (Williams, 2007).

Captain Linda Oauwels, a Hispanic pilot and a female who, according to the Society of Women Airline Pilots, is the youngest woman ever to become a jet captain at age 25 and one of the very few Hispanics ever to become a captain, is establishing a foundation to help young poor Hispanics become pilots. "I want to identify children who would never have the opportunity because they do not have the means. I want them to be children of character, competent, who you can see are going to make it....There is a need for pilots to maintain a high level of professionalism" (Williams, 2007).

In Tucson, Arizona, a program has been set up by Nelnet to reach at-risk Hispanic youngsters. As a reward for fulfilling a contract they sign, including raising a grade point, completing an aviation history course, staying in school and off drugs, they are allowed to have a flight lesson with a volunteer pilot, with an impressive “graduation” ceremony at the Tucson Airport (Nelnet School Newslettter, 2007).

Native Americans In Aviation

Maj. Gen. Clarence Tinker, an Osage and a career pilot, was the highest ranking Native American in the armed forces at the beginning of World War II. He died leading a flight of bombers in the Pacific during the Battle of Midway, the first American General to be lost in the war. Tinker Air Force Base in Oklahoma City is named for him (Morgan, 1995).

Most recently, the first Native American in space also became the first Native American to walk in space when John Bennett Herrington, a registered Chickasaw, was a mission specialist on board the *Endeavour* space shuttle in November 2003.

On the occasion of the *Endeavour's* lift-off, two hundred Chickasaws, from elders to students, traveled to Kennedy Space Center for a special tour of the facility. One seventh grader was quoted, "I saw the space shuttle and thought about how he (Cmdr. Herrington) will be the first Native American to go into space and he is part of our tribe." A NASA-hosted symposium entitled "Linking Education to Employment" included remarks by Chickasaw Governor Bill Anoatoby: "Education is the key for our young people. It is a very high priority to us" (Anoatoby, 2003).

At the Omaha Aviation Institute at the University of Nebraska, a NASA Space Grant provides a Family Science Night for fifth and sixth graders in the Winnebago Public School system on the Winnebago Reservation. Twice a semester the students participate in science projects with their family members, doing activities such as assembling model airplanes, building rockets and calculating their acceleration and velocity. Students are also shown how to track items with global positioning systems ("Reaching Native Americans," 2006).

Women In Aviation

Today, women pilots fly for airlines, in the military and in space, compete in air races, and fly helicopter mercy flights. In 1911, Harriet Quimby became the first certificated woman pilot. In 1912, she became the first woman to fly across the English Channel. In 1921 Bessie Coleman became the first African American woman pilot. The

majority of African American women have never heard of women like Bessie Coleman, who was also the first African American to earn an international pilot's certificate. This courageous woman flew at a time when very few women of any race had a pilot's certificate. In the early 1920's, women pilots were a rarity and black women pilots were a virtual impossibility. But to Coleman, who had learned about flying from newspapers and her brother's wartime tales of French women aviators, a career in flying offered an irresistible challenge (Smith, 2007).

Discrimination against African Americans in the United States and towards women as pilots forced Bessie Coleman to move to France. She later returned to the United States and pursued her career until 1926 (Grant, 2007).

Other famous women in aviation include Louise Thaden who competed for the women's endurance record in 1929 at Oakland Municipal Airport in California. Anne Morrow Lindberg, wife of Charles Lindbergh, was the first U. S. woman glider pilot. Willa Brown was the first African American commercial pilot and first African-American woman officer in the Civil Air Patrol. Brown formed, in 1929, the National Airmen's Association of America whose purpose was to get African Americans into the U. S. Armed forces as aviation cadets. Geraldine (Jerry) Mock became the first woman to fly around the world in 1964 in a single-engine Cessna 180. The firsts of women continue in aviation to the present day (Grant, 2007).

By the 1960's there were 12,400 certificated women pilots in the United States (3.6% of all pilots). This number doubled by the end of the decade to nearly 30,000 women, or 4.3% of the total pilots. Today, women comprise about 6% of pilots in the United States (Grant, 2007).

The first women's pilot organization was formed on November 2, 1929, to formally create the organization now known as The Ninety-Nines, Inc., International Organization of Women Pilots (Abbate, 2007), the headquarters of which is at Will Rogers World Airport in Oklahoma City.

Minorities played an important role in the history of aviation and face the same challenges as all other candidates when sitting at the interview table. Unfortunately, the days when persons are all just "pilots" has not yet arrived. Much progress has been made during the last fifty years, yet some people still see "African Americans pilots," "Asian Pilots," "Hispanic pilots" and "women pilots," not just pilots (American Council on Education, 2003).

University Aviation Association

The National Association of University Administrators of Aviation Education (NAUAAE) was organized in Denver, Colorado, in order to encourage and expand the growth and status of aviation education programs nationwide. In 1949 the organization's name was changed to the University Aviation Association (UAA) and the headquarters office was established at United Airlines School and College Service (UASCS) in Chicago, Illinois. UAA is the only professional organization representing all levels of the non-engineering/technology sector in collegiate aviation education. Over the years, UAA has played a pivotal role in the enhancement of collegiate aviation education. In response to a request from the FAA, UAA developed an Airway Science curriculum for those seeking careers with the FAA and in the aviation industry. Under an FAA contract, UAA reviews and evaluates curricula, conducts periodic visits to campuses and co-sponsors

workshops, seminars, and forums for institutions and faculty. Student aviation career seminars are also offered by the UAA (University Aviation Association, 2006).

The UAA distributes essential information on scholarships and career opportunities, and compiles a list of textbooks used in aviation curricula, including a comprehensive directory of aviation books, periodicals and audiovisual materials. Through the sponsorship of annual professional paper presentations and awards programs, UAA promotes excellence in aviation education. UAA's own biannual meetings, and the meetings the association sponsors, are important forums for aviation educators, industry representatives and students (UAA, 2006).

The UAA led to the establishment of the Council on Aviation Accreditation (CAA), now known as Aviation Accreditation Board International (AABI). In addition to its affiliation with AABI, UAA actively supports affiliated organizations such as the National Intercollegiate Flying Association and NIFA Foundation and Alpha Eta Rho, a national aviation fraternity. The Association also assists manufacturers in development of appropriate teaching and laboratory equipment such as flight instruction aircraft and simulators. UAA input affects new and existing federal aviation regulations in all areas of certification for flight, maintenance and air traffic personnel (UAA, 2006).

The UAA provides fast, up-to-date service to its members, supplying useful materials and information about the latest developments in the collegiate aviation community through the *UAA Newsletter*.

The vision of the UAA is to provide professional association and a unifying voice for promoting and furthering aviation education as a collegiate academic discipline (UAA, 2006). The mission is to promote and foster excellence in collegiate aviation

education by providing a forum for students, faculty, staff, and practitioners to share ideas, to enhance the quality of education, and to develop stronger programs and curricula, and to influence aviation education policy at all governmental levels to provide and nurture the linkage between collegiate education, the industry, and government agencies. The objectives of the UAA are (1) To be an open forum for all collegiate aviation education, (2) To create and influence national policies related to aviation education, (3) To assist students, faculty, and institutions in defining and achieving their aviation education aspirations, (4) To encourage individuals to choose aviation-related career, (5) To assist in the professional development of individual members, (6) To promote awareness of collegiate aviation through interactions with the aviation industry and government, (7) To assist institutions in meeting the needs of the aviation industry and government; and (8) To be a media resource for accurate aviation education information (UAA, 2006).

The Federal Aviation Administration

The Air Commerce Act of May 20, 1926, was the cornerstone of the Federal government's regulation of civil aviation. The landmark legislation was passed at the urging of the aviation industry, whose leaders believed the airplane could not reach its full commercial potential without Federal action to improve and maintain safety standards. The Act charged the Secretary of Commerce with fostering air commerce, issuing and enforcing air traffic rules, certificating pilots, certificating aircraft, establishing airways, and operating and maintaining aids to air navigation. A new Aeronautics Branch of the Department of Commerce assumed primary responsibility for

aviation oversight. The first head of the Branch was William P. MacCracken, Jr., who played a key part in convincing Congress of the need for this new government role (Burkhardt, 1989).

In 1940, President Franklin D. Roosevelt split the Authority into two agencies, the Civil Aeronautics Administration (CAA) and the Civil Aeronautics Board (CAB). The CAA was responsible for Air Traffic Control (ATC), airmen and aircraft certification, safety enforcement, and airway development. The CAB was entrusted with safety rulemaking, accident investigation, and economic regulation of the airlines. Both organizations were part of the Department of Commerce (Burkhardt, 1989).

The approaching introduction of jet airliners and a series of midair collisions spurred passage of the Federal Aviation Act of 1958. In 1966, Congress authorized the creation of a cabinet department that would combine major Federal transportation responsibilities. This new Department of Transportation (DOT) began full operations on April 1, 1967. On that day, FAA became one of several modal organizations within DOT and received a new name, Federal Aviation Administration. At that same time, CAB's accident investigation function was transferred to the new National Transportation Safety Board (Burkhardt, 1989).

The first FAA Administrator was World War II fighter pilot Lt. Gen. Elwood R. "Pete" Quesada, a Hispanic-American (Garamone, 2000).

The FAA, through its Office of Civil Rights, conducts an extensive program to reach out to minorities to increase the number of employees from under-represented U.S. ethnic groups in the FAA work force. The Federal Women's Program, Hispanic Employment Program, and People with Disabilities are major employment program

objectives (FAA, 2007). The FAA supports a number of minority employee programs, e.g., the National Black Coalition of Federal Aviation Employees (NBCFAE, 2007), the National Hispanic Coalition of Federal Aviation Employees (NHCFAE, 2007), and Federally Employed Women (FEW, 2007). Each organization conducts outreach programs to motivate minorities to pursue aviation and aerospace careers. The NBCFAE Aviation Education Career (ACE) camps provide guidance to young men and women about the potential careers available in the commercial transportation and general aviation industries. In the past 30 years, NBCFAE has reached over 100,000 students nationally (NBCFAE, 2007).

The FAA also conducts an Aviation Education Program to reach out to the public schools nationwide to encourage teaching aviation subjects in K through 12. Teachers are provided literature, audio-visuals (film and videotape), grade specific curricula and lesson plans. Emphasis is placed upon reaching out to underrepresented ethnic groups in our society. This program is mandated and funded by the U.S. Congress (FAA Student Resources, 2007).

Minority Pilot Organizations

Organization of Black Airline Pilots

The goals of the Organization of Black Airline Pilots (OBAP) are to motivate youth to become educationally prepared for life, to increase minority participation in aviation through exposure, training, mentoring, and scholarships; to encourage networking among African American airline pilots; to increase the number of African American pilots hired by airlines; and to assist the African American airline pilots with

special needs and concerns. OBAP's goal is to increase the African American population in the airline ranks and is determined to build an airline hiring pool which is both inclusive and expansive (OBAP, 2007).

The OBAP has had many accomplishments during its short existence. Most importantly, it has allowed African American pilots and their families from many airlines to meet, exchange ideas, fellowship, and experience a camaraderie that could never have existed without its creation. Through networking, many African American pilots' applications that may have otherwise been doomed to obscurity have been helped through the processing maze (OBAP, 2007).

OBAP works with CEO's, vice-presidents of flight operations, and personnel officers. They have also worked with politicians, educators, entertainers, business experts, clergy and others for assistance. OBAP has been spotlighted in *Enterprise*, on CNN News, *Ebony*, *Tony Brown's Journal* and has had local television interviews (OBAP, 2007).

OBAP has established a scholarship fund for educational and aviation training. One special project is sending students to the summer flight academy, founded by Eastern Airlines Captain Les Morris and Mr. Albert Abdool. The summer camps are two weeks of intense aviation education, discipline, and flying. The students get approximately ten hours of flying time and most of them solo (OBAP, 2007).

Black Pilots of America, Inc.

Black Pilots of America, Inc. (BPA, Inc.) is a nonprofit organization established in 1997. Its purpose is to provide an atmosphere for everyone to learn to fly and perhaps

own airplanes. Membership is open to men, women and youth with the enthusiasm to fly (Black Pilots of America, 2005).

Other minority organizations, just to name a few, include United States Army Black Aviation Association, Inc. (USABAA, Inc.), Malaysia Airline Pilots Association, Minority Pilot Association, California Black Aviation Association and the Society of Women Engineers. All of the organizations have the same purpose of making minorities aware of the field of aviation, particularly the professional pilot programs.

Professional Pilot Programs

The course curriculum of professional pilot programs at most of the UAA colleges and universities is basically the same. The Professional Pilot program at Oklahoma State University prepares students for a career as a pilot. Total number of hours required for the degree is 120 which includes 40 general education hours and 73 hours in the degree program core. The number of electives is 7 (Appendix E). The Flight Education (Professional Pilot Program) at Hampton University in Hampton, Virginia, also has a total of 120 hours which includes three hours of electives and 43 hours of general education courses (Appendix F).

Summary

The minority enrollment in U. S. colleges and universities increased by nearly 1.5 million, an increase of 51.7 %, between 1991 and 2001 (Table I). With so many minority students enrolled in colleges and universities, there is still a low representation of minorities in the field of aviation.

Minorities have been faced with obstacles and struggles to gain a seat in the field of aviation. Minority aviation pioneers have fled to other countries to obtain a certificate in aviation particularly as a pilot.

Several minority organizations have set goals to motivate youth to participate in aviation exposure, training, mentoring, and scholarships. They are pushing for colleges and universities to realize that diversity in education must be dealt with. Colleges and universities must confront the four critical issues of diversity:

1. Devotion of attention to helping faculty and faculty assistants develop methods that foster respect for cultural differences and address the different learning styles. Not all people learn alike.

2. Special programs and special recruitment programs must be offered in colleges, universities and public schools to improve enrollment, retention, satisfaction, academic success, and cognitive development.

3. Colleges and universities must have diversity among administrators, faculty and staff members.

4. Workshops on college campuses and in public schools should train teachers and staff members that students learn differently according to their ethnic background.

CHAPTER III

DESIGN OF THE STUDY

RESEARCH DESIGN

Chapter III explains the methodology of the study to (1) determine the number of minorities in professional pilot programs, (2) to identify minority recruitment programs in aviation and in professional pilot education programs and (3) to determine the perceptions of African American pilots.

Statement of The Problem

What are the recruitment programs for minorities in professional pilot education programs?

Purpose of The Study

The purpose of the study is (1) to determine the number of minorities in professional pilot programs, (2) to identify minority recruitment programs in aviation and in professional pilot education programs and (3) to determine the perceptions of African American pilots.

Population

The population of this study consisted of (1) University Aviation Association college and university aviation department chairpersons and directors, and (2) members of the Black Pilots Association and African American pilots. Letters of introduction were mailed from the principal investigators, Dr. Steve Marks, Chairman of the Department of Aviation and Space Education at Oklahoma State University and this researcher (Appendix A). The letter requested the cooperation and participation of each college and university. Telephonic interviews were conducted with African American pilots.

Research Questions

The following research objective questions were identified in this study.

Research Question Number One

What are the demographics of aviation department chairpersons and directors at UAA colleges and universities?

Research Question Number Two

What is the number of students and minority students enrolled in professional pilot education programs in the North East, South East, Central, North West and South West regions in the United States?

Research Question Number Three

Are minority students in any other aviation related program or programs?

Research Question Number Four

What are the recruitment programs in UAA colleges and universities aviation departments?

Research Question Number Five

What are the recruitment programs for minorities in UAA colleges and universities aviation departments?

Research Question Number Six (Telephone Interviews
with African American Pilots)

What are some of the perceived problems as to why there are so few minorities in the field of aviation, particularly the professional pilot program?

Research Question Number Seven (Telephone Interviews
with African American Pilots)

What could colleges, universities, and minority organizations do to help increase the number of minority students entering into the field of aviation, particularly in the professional pilot program?

Research Question Number Eight (Telephone Interviews
with African American Pilots)

What are the perceived constraints that preclude individuals from entering into an aviation course of study, particularly the professional pilot program?

Instrumentation

Research data was gathered using two survey instruments: (1) survey instrument (Appendix B) and (2) personal telephone interview instrument (Appendix C). The survey instrument contained 11 questions in two divisions. The first division was 5 questions directed to directors and chairpersons of the aviation department. The second division contained 6 questions concerning students in the aviation department. This instrument contained 9 multiple choice questions and two open response questions. The personal telephone interview consisted of six open-ended questions used to conduct personal telephone interviews with African American pilots. The Oklahoma State University Institutional Review Board (IRB) reviews all research involving human subjects. In compliance with the policy, this study received the proper surveillance, and was granted permission to continue (Appendix G).

To insure validity of the survey instrument and personal telephone interviews, the questions were given to a group of experts including the Retired Director of Aviation Education at Oklahoma State University, a member of the Black Pilot Organization, a retired African American Pilot and an Aviation Education Professor at Langston University. All corrections recommended by the reviewers were made.

Research Question Number One

What are the demographics of aviation department chairpersons and directors at UAA colleges and universities? This question was answered from the following survey questions:

Survey Questions 1 - 5. What is the gender, race/ethnicity, present position, number of years in the present position and highest level of education of the aviation department chairpersons and directors?

Research Question Number Two

What is the number of students enrolled in UAA colleges and universities professional pilot education programs in the North East, South East, Central, North West and South West regions of the United States? This question was answered from the following survey questions:

Question 2 – (section 2 concerning students) Approximate number of students enrolled in your department:

1-100

101-200

201-300

300-400

above 400

Question 3 – (section concerning students) Approximate number of minorities enrolled in your department:

African American less than 5; 5-25; 31-40; 41-50; above 50

Asian American less than 5; 5-25; 31-40; 41-50; above 50

American Indian less than 5; 5-25; 31-40; 41-50; above 50

Hispanics less than 5; 5-25; 31-40; 41-50; above 50

Women less than 5; 5-25; 31-40; 41-50; above 50

Research Question Number Three

Are minority students in any other aviation related program or programs? This question was answered by the following survey question:

Question 4 (section concerning students) – Area of concentration of minorities in your department.

African Americans	Pilot; Admin.;	Mechanical; Other
Asian American	Pilot; Admin.;	Mechanical; Other
American Indian	Pilot; Admin.;	Mechanical; Other
Hispanics	Pilot; Admin.;	Mechanical; Other
Women	Pilot; Admin.;	Mechanical; Other

Research Question Number Four

What are the recruitment programs in UAA colleges and universities aviation departments? This question was answered by the following survey question:

Question 5 - (section concerning students) – Briefly describe the department’s recruitment procedures.

Research Question Number Five

What are the recruitment programs particularly for minorities in UAA colleges and universities aviation departments? This question was answered by the following survey question:

Question 6 – (section concerning students) – Briefly describe the department’s recruitment procedures for minorities, if any. If none, please write none.

Research Question Number Six (Telephone Interviews
with African American Pilots)

What are some of the perceived problems as to why there are so few minorities in the field of aviation, particularly the professional pilot programs?

This question was answered by the following survey questions:

Telephone Interview Question 1 – Method of earning your pilot certificate, i.e., military, college/university, or private instruction?

Telephone Interview Question 2 - What inspired you to become a pilot?

Telephone Interview Question 3 – What do you feel are some of the problems as to why there are so few minority pilots?

Research Question Number Seven (Telephone Interviews
with African American Pilots)

What could colleges, universities, and minority organizations do to help increase the number of minority students entering into the field of aviation, particularly in the professional pilot education programs?

The question was answered from the following telephone interview questions:

Telephone Interview Question 4 — What would be a good recruitment tool for colleges, universities, and minority organizations to use to attract minorities into the professional pilot programs?

Telephone Interview Question 5 – How can colleges and universities better market the idea of becoming a pilot?

Research Question Number Eight (Telephone Interviews
with African American Pilots)

What are the perceived constraints that preclude individuals from entering into an aviation course of study, particularly the professional pilot programs?

The question was answered from the following telephone interview question:

Telephone Interview Question 6 – What perceived problems do you feel minorities have that would hinder their entering the field of aviation, particularly the professional pilot programs?

Data Collection

The data, accompanied by a cover letter, was mailed by the U. S. Postal Service to aviation department chairpersons and directors of UAA colleges and universities. A self-addressed, stamped envelope was placed with the cover letter and the survey to mail back to the researcher. The researcher recorded responses by African American pilots to the personal interview instrument.

Data Analysis

The researcher analyzed the data in this study as soon as the completed surveys from each UAA college and university aviation department were received. Two sources of data were used to find why there are so few minorities in the field of aviation, particularly as pilots: (1) survey instrument, (2) telephone interviews from Black Pilot Organizations members and African American pilots.

The two divisions of the survey instrument were analyzed using descriptive statistics to describe the sample from this study. Each response on the survey was coded and recorded in a quantitative manner. The personal interviews instrument survey was recorded in the manner it was received from the telephone personal interview.

Summary

This chapter presented a description of the study population, statement of the problem, purpose of the study, research questions, instrumentation, sources of data collection and analysis of data.

CHAPTER IV

FINDINGS

Chapter IV represents the research findings of this study (1) to determine the number of minorities in professional pilot education programs, and (2) to identify minority recruitment programs in aviation and in professional pilot education programs and (3) to determine the perceptions of African American pilots.

Statement of The Problem

What are the recruitment programs for minorities in professional pilot education programs?

Purpose of The Study

The purpose of this study was (1) to determine the number of minorities in aviation particularly in professional pilot education programs, (2) to identify minority recruitment programs in aviation and in professional pilot education programs and (3) to determine the perceptions of African American Pilots.

Population

The population of this study consisted of (1) University Aviation Association college and university aviation department chairpersons and directors, and (2) members of the Black Pilots Association and African American pilots.

Findings

Data was obtained from UAA colleges and universities through (1) a survey instrument (Appendix B) designed to obtain basic information from aviation department chairpersons and directors, and (2) personal telephone interviews with members of the Black Pilot Association and African American pilots (Appendix C). Fifty-five surveys or 61% were returned of the 90 sent to directors of UAA college and university aviation departments.

Research Questions

Research Question Number One

What are the demographics of aviation department chairpersons and directors at UAA colleges and universities? Survey questions 1-5 of section one responded to this research question.

The survey revealed in the gender category of aviation department chairpersons and directors, 78% were male, 13% were female and 9% were male and female serving as co-chairpersons of the aviation department.

The race/ethnicity category of the survey revealed 85% were white or Caucasian, 5% were African Americans, 5% were Asian American, and 5% were Hispanic. The Native Americans reported having 0% aviation department chairpersons and directors.

The survey further reported that 35% of the aviation department chairpersons and directors had been in their position 1-5 years, 42% reported 6-10 years and 23% reported 10 or more years. The highest level of education reported from the survey reported 73% held master degrees, 15% held Bachelor degrees and 11% held Doctorate degrees and 1% held a special degree.

Research Question Number Two

What is the number of students enrolled in UAA colleges and universities professional pilot education programs in the North East, South East, Central, North West and South West regions of the United States? Survey questions 2 and 3 of section 2 (students) responded to this question.

TABLE III
 DEMOGRAPHICS OF AVIATION DEPARTMENT
 CHAIRPERSONS AND DIRECTORS

Category	Number	%
Gender:		
Male	43	78
Female	12	22
Race/Ethnicity		
African American	3	5
Asian American	3	5
American Indian	0	0
Hispanic	2	5
White/Caucasian	47	85
Number of Years in Present Position		
Years 1-5	19	35
Years 6-10	23	42
Years above 10	13	23
Highest Level of Education		
Bachelors	8	15
Masters Degree	40	73
Doctorate Degree	6	11
Specialists	1	1

The North East region reported having 51% student enrollment in UAA colleges and universities professional pilot programs. The South East region reported 7% student enrollment in UAA colleges and universities professional pilot programs. The Central region study revealed 13% student enrollment in UAA colleges and universities professional pilot programs. The North West region revealed 5% student enrollment in UAA colleges and universities professional pilot programs in the study and the South West region revealed 24% student enrollment in UAA colleges and universities professional pilot programs.

The study revealed the following data (number of UAA schools reporting) as shown in Table IV.

TABLE IV
UNIVERSITY AVIATION ASSOCIATION SCHOOLS REPORTING

Region	1-100	101-200	201-300	301-400	Above 400
North East	9	17	1	1	
South East	2	1	0	1	0
Central	3	2		1	1
North West	1	1		1	
South West	1	4	5	2	1

Results from this question indicated 29% of the 55 schools reporting had 5 or fewer African Americans, 16% reported having between 6-25 African Americans, 47% reported having between 26-30 African Americans, 2% reported between 42-50 and 6% indicated having above 50 African Americans.

The results further indicated 60% of the 55 schools returning surveys had 5 or fewer Asian Americans, 36% reported having 6-25, 4% reported 26-30. The other categories for Asian Americans reported having 0%.

Further results reporting on Native Americans indicated 100% had 5 or fewer in their department. All other categories reported 0%.

Reporting from the 55 UAA colleges and universities on Hispanics 67% had 5 or fewer and 33% had 6-25. The other categories for Hispanics reported 0%.

Results further indicated that the women minority had 16% in the category 5 or fewer, 6-25 category had 33%, 26-30 category had 8%, 31-40 category reported 5%, 41-50 category had 33% and above 50 category reported having 5%.

Table V shows the actual number of UAA colleges and universities reporting in each category.

TABLE V
STUDENTS ENROLLED IN PROFESSIONAL PILOT EDUCATION PROGRAMS

Minority	5 or less	6-25	26-30	31-40	41-50	Above 50
African Americans	16	9	26	0	1	3
Asian American	33	20	2	0	0	0
American Indian	55	0	0	0	0	0
Hispanic	37	18	0	0	0	0
Women	9	18	4	3	18	3

Research Question Number Three

Are minority students in any other aviation related program or programs?

The question was answered from survey question 4 of section 2 (students).

The data obtained for the study from the survey questionnaire clearly showed that most of the minorities enrolled in the aviation and space department of the 55 UAA schools reporting were in the area of pilot education. African Americans reported 91% in professional pilot education, and 9% in Air Traffic Control training. Asian Americans reported 100% in professional pilot education. Native Americans reported 100% in mechanical training, and women reported having 85% in professional pilot education programs and 15% in administration.

Table VI shows the actual number of UAA colleges and universities reporting minority students enrolled in other aviation related programs.

TABLE VI
MINORITY STUDENTS ENROLLED IN OTHER
AVIATION RELATED PROGRAMS

Minority	<u>Category</u>			
	Pilots	Administration	Mechanical	Other
African American	50			5 (ATC)
Asian American	55			
American Indian			55	
Hispanic	55			
Women	47	15		

Research Question Number Four

What are the recruitment programs in UAA college and universities aviation departments? This question was answered by survey question five, section two, concerning students.

Recruitment procedures for all schools were basically the same. Such procedures included:

1. Outreach to high school students
2. Career day high school visitation
3. Visitation to community and junior colleges
4. Newspaper advertisements using excellent web-sites
5. Sponsored campus workshops and programs
6. UAA catalogue mailing list
7. Large aviation conferences inviting high school students
8. Word of mouth
9. Field trips for high school and elementary students visiting airplane simulators
10. Visitation to counselors in public schools leaving brochures and program information asking counselors in public schools to please encourage students to consider the field(s) of aviation

One college reported having no recruitment because of the large number of applicants applying for admission into the aviation department.

Research Question Number Five

What are the recruitment programs particularly for minorities in UAA colleges and universities aviation departments?

This research question was answered by survey question number 6.

Two schools reported having special recruitment procedures geared toward minority students. The recruitment procedures used for attracting minority students into the field of aviation were (1) Hiring a diverse staff and faculty in the aviation department.

By doing this, the minority in these areas would be able to recruit within their own race. This recruitment procedure was reported by a Historically Black College or University; and (2) Scholarship endowments for women only. This recruitment procedure was reported by the schools reporting having 41-50 enrolled in the aviation department.

Research Question Number Six (Telephone Interviews

with African American Pilots)

What are some of the perceived problems as to why there are so few minorities in the field of aviation, particularly the professional pilot programs?

Telephone Interview Question 1 – What was the method of earning your pilot’s certificate, i.e., military, college/university or private institution.

Pilot No. 1 through the military – Marines.

Pilot No. 2 military – Air Force

Pilot No. 3 Pilot’s certificate was received from a private institution in Oklahoma. He has a Doctorate Degree in Education and Counseling from Oklahoma University.

Pilot No. 4 through the military

Pilot No. 5 private sector flight school.

Telephone Interview Question 2 – What inspired you to become a pilot?

Pilot No. 1 Inspiration came from members of his family who served as pilots in the military.

Pilot No. 2 The inspiration of becoming a pilot came from dreams of one day flying. His dream was to become a professional pilot. However, he had to enter through the military in order to realize his dream.

Pilot No. 3 His inspiration to become a pilot came from being raised in the back yard of an air field. He was playing baseball in his back yard with friends and would stop every time an airplane would take off. He became fascinated with airplanes and dreamed of one day flying his own plane. He was trained on the last aircraft owned by Alfred Anderson, who helped to train the Tuskegee Airmen.

Pilot No. 4 His inspiration for being a pilot came from family and friends and dreams.

Pilot No. 5 He was inspired by his grandfather, uncle and a friend. He was always "up in the air" with one of the three. He knew he wanted to fly and knew there were not many pilots of his particular minority group.

Telephone Interview Question 3 – What do you feel are some of the problems as to why there are so few minority pilots?

Pilot No. 1 Students enter the program unprepared academically and emotionally. Because of this, they are intimidated by the course curriculum when entering the field of aviation. It is not that the students cannot do the work of becoming a pilot; it's just that they have not been properly prepared. Students should start being prepared for this field in the third grade and follow through with the preparation through high school. Students entering this field must have self-confidence and knowledge as well as the academics and emotions to deal with a career as a pilot. Being a pilot requires 80% dealing with emergencies and 20% dealing with other pilot duties. Students must

know the weather system, must further know how to deal with electronics and how to deal with the systems required to get the plane from A to B. He further stated that students in the professional pilot program must first enjoy learning about becoming a pilot. If there is no joy, the student will not be successful. Becoming a pilot is no joke!

The cost of becoming a pilot is a factor as to why there are so few minorities as pilots. When he started out to become a pilot the cost was approximately \$600.00 for a private certificate. Today the cost for obtaining a private pilot's certificate is from \$6,000.00 to \$10,000.00. This is the reason most minorities entered the military then learned how to become a pilot because the GI bill would pay for most, if not all, of the cost of becoming a pilot.

Pilot No. 2 The lack of exposure for minorities is a big problem. Minority pilots have been flying successfully for many years, yet the public seldom hears about the success stories. There were over 1,000 African American pilots trained to fly in World War II yet there were no African American pilots flying in the United States as commercial pilots for major airlines. The major airlines had to be sued before they accepted minorities as pilots for their companies.

Pilot No. 3 (1) The idea of not knowing there is someone like you who is a pilot; (2) the idea of not having someone to network with and (3) having no one to identify with. Cost is another problem as to why there are so few minority pilots and accessibility to flight instruction.

Pilot No. 4 Cost and preparation.

Pilot No. 5 He stated the cost is the main factor that causes minorities not to be in aviation. It is too expensive for most minorities. When he received his certificate the cost was approximately \$10,000 plus.

Research Question Number Seven (Telephone Interviews
with African American Pilots)

What could colleges, universities, and minority organizations do to help increase the number of minorities entering into the field of aviation, particularly in the professional pilot programs?

Telephone Interview Question 4 – What would be a good recruitment tool for colleges, universities and minority organizations to use to attract minorities into the professional pilot program?

Pilot No. 1 American colleges and universities must have special recruitment programs for minorities. In the Asian culture, students are taught at an early age to master math, science, technology and other courses. They have their heads buried in books and little time for social life. In other minority cultures students are not forced to master these areas at an early age. Therefore, they have a tendency to shy away from courses which seem or are said to be too difficult when entering junior or high school. Family involvement is the key in becoming prepared to enter the field of aviation, particularly in the professional pilot program. When there is little family involvement, the schools must prepare the students academically to enter the field of aviation.

He further stated that colleges and universities visit public schools and have field trips but they could work hand-in-hand with minority pilots to talk to minority students. It is easier to recruit from someone of their own kind. The minority feels they too can make it.

Minority organizations should have field trips and workshops as well and should recruit within their own communities or in communities dominated by minorities. Last thing, minority organizations and colleges and universities should offer scholarships to defray the cost of obtaining a pilot's certificate.

Pilot No. 2 He discussed what a minority organization is designed to do. The organization should open doors for minorities by giving, on the national, state and local levels, workshops, career days, and field trips for high school, junior high and elementary students. Visitation to these schools should include but not be limited to pictures and posters of famous minority pilots and others in the field of aviation.

The organization members should visit homes, door to door, passing out flyers of upcoming events and famous pilots and minority pilots. Last, the organization should give scholarships to help with the high cost of obtaining a pilot's certificate today. If each organization gave at least five to six scholarships each year, this would open the field of aviation to minority students.

American colleges and universities should have special recruitment programs for minority students. The financial cost and a lack of getting prepared for a career in becoming a pilot are two areas keeping minorities out of the field of aviation, particularly as pilots. The student must know the things needed to become prepared for such a career.

Career days, field trips bringing the students to the area where pilots are trained, workshops advising students what is needed to have a career in aviation, particularly as a pilot, and school visitations by college and universities with a diverse staff are recruitment programs needed to attract minorities to aviation.

Pilot No. 3 A good recruitment tool to attract minorities into the professional pilot program is to have more HBCU schools with Aviation Science or Pilot Education. This will certainly increase the number of minorities in the professional pilot program.

Colleges and or universities should offer stipends with a guarantee of a job after completing the pilot's course and receiving a pilot's certificate.

Advertise how relatively easy it is to become a pilot despite the cost. Advertise the opportunities in being a pilot such as commercial flying, military flying or general flying which is merely flying for fun, which he does.

Pilot No. 4 A good recruitment tool would be handouts with all pilots (minorities and Caucasians) pictured on the handout. This will more than likely show the minority that they can belong to this group of pilots. Show the minority it is possible to become a pilot. It gives a subliminal message.

Pilot No. 5 A good recruitment tool for colleges and universities to attract minorities would be to work with the airlines to open doors for minorities. Scholarships to defray the cost would be the best tool. Another recruitment tool would be to work with the government to offer scholarships or write grants to help with the high expense of obtaining a pilot's certificate.

Telephone Interview Question 5 – How can colleges and universities better market the idea of becoming a pilot?

Pilot No. 1 Colleges and universities should encourage high schools to offer aviation courses in the vocational curriculum. This would certainly open the field of aviation, particularly the professional pilot program. The expense of offering these courses would be taken care of through grants. In addition, add aviation to the vocational curriculum.

Pilot No. 2 He stated the aviation curriculum should be placed into the vocational curriculum at high schools throughout the nation.

Pilot No. 3 The number one way to market the idea of becoming a pilot is by word of mouth – putting the pilots in the school. Recruitment should start at an early age with such programs as the Boy Scouts of America Explorer Scouting. Start introducing aviation careers to young people in these programs.

Of course Aviation careers could be marketed through the television and radio stations. Everyone watches television and most listen to the radio.

Set aside the month of April as National Aviation Month. Use females and minorities along with the white male to advertise this event. The public will see it is not just for the rich or just for the white male.

He stated he was an adult before reading or hearing or learning about careers in aviation. He never read about these careers nor did he ever hear anyone talking about aviation.

Pilot No. 4 You can market the idea of becoming a pilot by showing the advantages of having aviation as a career. Show the future of aviation. Show how aviation is not only a way to make a good livelihood but how it can be an enjoyment and

how it is a means of getting to your destination in a limited amount of time. Compare aviation with other means of transportation.

Pilot No. 5 There are not a lot of course offerings for students to get into the field of aviation. His company is in the process of hiring a lot of pilots in the near future; therefore, something needs to open up in order to get minorities ready for entering the field. Students should start being prepared in the early grades and it should follow through high school. The opportunities for students entering the field are not there. There are a lot of offerings in the business and science fields but not a lot in the field of aviation. This is hindering minorities from entering the field of aviation.

Research Question Number Eight (Telephone Interviews
with African American Pilots)

What are the perceived constraints that preclude individuals from entering into an aviation course of study, particularly the professional pilot programs?

Telephone Interview Question 6 – What perceived problems do you feel minorities have that would hinder them from entering the field of aviation, particularly the professional pilot program?

Pilot No. 1 The first problem is coming to the table unprepared academically. The courses are not too difficult; it's just that the student is not prepared academically. Preparation should start in the third or fourth grade. If the student is not properly prepared he or she becomes intimidated by the curriculum, only because of not being prepared.

If minorities want to enter the field of aviation while serving in the military they must be prepared. The military will not talk to an individual unless the individual is first prepared academically and emotionally.

The individual must be knowledgeable in courses such as mathematics, all sciences, weather courses, and electronic systems.

Pilot No. 2 This veteran African American pilot perceived the main problem hindering minorities from entering the field of aviation, particularly the professional pilot program, to be that students entering the field of aviation must come with two components (1) confidence and (2) proper academic (background) preparation. If a student does not enter the field with these two components, he or she will fail. This is why it is so important for counselors, faculty members and other pilots to make sure students entering this field are guided properly. This preparation should start in elementary schools, grades three and four. Students who do not have the background in mathematics, science, electronics and technology will not enter the field. They are fully aware of their capabilities. Students who feel and know they are very good in these areas will enter the field through recruitment programs. Once being made aware of the career, preparation should take place and continue through higher education.

Pilot No. 3 He perceives cost to be one of the main factors for keeping minorities out of the field of aviation.

The perception that most people have is that you must be extremely smart in order to become a pilot. They feel you must be above average in mathematics and science in order to even think about becoming a pilot. The truth is you must have a background in

mathematics and science but not to the degree that you must be almost a genius in these areas to become a pilot. An average person can become a pilot.

Misinformation – People telling minorities they cannot fly because they do not have the intelligence to become a pilot. This information is false and the correct information should be given to the public to attract minorities into the field of aviation, particularly in the professional pilot program.

Pilot No. 4 The perceived problems hindering minorities from entering the field of aviation are cost and course requirements perceived to be too difficult.

Summary

Chapter IV, based on the data gathered from surveys sent to 90 UAA college and university aviation department chairpersons and directors, presented the findings as to why there are so few minorities in the field of aviation. Fifty-five or 61% of the surveys mailed returned completed surveys to the researcher.

Research question number one indicated most aviation department chairpersons and directors were males of Caucasian race/ethnicity, had been in their position 5-10 years and the highest level of education held by them was a master's degree.

Research question number two findings reported the surveys were mostly returned from the North East region of the United States and had the highest number students in the aviation department, 100-200.

Research question number two further reported that of the 55 schools returning surveys, all schools had five or fewer minorities in their department.

Research question number three indicated minorities enrolled in the field of aviation at the 55 UAA schools returning surveys were in the pilot area of concentration.

Research question number four reported of the 55 schools basically all had the same recruitment procedures.

Research question number five indicated only two schools had recruitment programs for minorities. The schools reporting these programs were Historically Black Colleges or Universities.

Research question number six, which was a telephone interview with African American pilots, reported that lack of exposure to aviation was the biggest problem faced by African Americans in becoming a pilot.

Research question number seven, also answered in a telephone interview by African American pilots, indicated a minority organization, in order to attract minorities into the field of aviation, should be more visible to minorities in their neighborhoods and through workshops.

Research question number eight answered in a telephone interview with African American pilots, identified individual confidence and proper academic preparation as two components necessary for students to be successful in aviation course work. If these components aren't met, minorities perceive the aviation course work to be too difficult. The high cost of aviation flight courses was mentioned by all interviewed as a major problem for many minorities.

CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

The purpose of this study was to determine why are there so few minorities in the field of aviation, particularly in the professional pilot education programs. Results of the study are presented by research questions.

Population

The population of this study consisted of (1) University Aviation Association college and university aviation department chairpersons and directors, and (2) members of the Black Pilots Association and African American pilots.

Statement of The Problem

What are the recruitment programs for minorities in professional pilot education programs?

Purpose of The Study

The purpose of this study was (1) to determine the number of minorities in professional pilot education programs, (2) to identify minority recruitment programs in aviation and in professional pilot education programs and (3) to determine the perceptions of African American pilots.

Research Questions

To conduct this research the following research questions were used in this study:

Research Question Number One

What are the demographics of aviation department chairpersons and directors at UAA colleges and universities?

Research Question Number Two

What is the number of students and minority students enrolled in professional pilot training programs in the North East, South East, Central, North West and South West regions in the United States?

Research Question Number Three

Are minority students in any other aviation related program or programs?

Research Question Number Four

What are the recruitment programs in UAA colleges and universities aviation departments?

Research Question Number Five

What are the recruitment programs for minorities in UAA colleges and universities aviation departments?

Research Question Number Six (Telephone Interviews
with African American Pilots)

What are some of the perceived problems as to why there are so few minorities as pilots?

Research Question Number Seven (Telephone Interviews
with African American Pilots)

What could colleges, universities, and minority organizations do to help increase the number of minorities entering the field of aviation, particularly in the professional pilot programs?

Research Question Number Eight (Telephone Interviews
with African American Pilots)

What are the perceived constraints that preclude individuals from entering into an aviation course of study, particularly the professional pilot program?

The UAA college and university aviation department directors and chairpersons were mailed a survey instrument. The survey was validated by a group of experts including members of the Black Pilot Association, a retired director of Aviation Education at Oklahoma State University, a retired African American Pilot and an Aviation Education professor at Langston University. The survey contained two sections and a total of 11 questions. The telephone interview with African American pilots consisted of six questions pertaining to the perceptions of African American pilots.

The surveys were collected when returned and the data was compiled by the researcher. The personal interview instrument survey was recorded in the manner it was received from the telephone personal interview.

Findings

Results of the study were the basis for the following findings:

Research Question Number One

What are the demographics of aviation department chairpersons and directors at UAA colleges and universities?

1. Of the 55 surveys returned from UAA colleges and universities 85% of the aviation department chairpersons and directors were Caucasians, 5% African Americans, 5% Hispanic, 5% Asian American and 0% Native American.
2. Of the 55 schools reporting 78% of the aviation department chairpersons and directors were males, 13% females and 9% were male and female serving as co-chairpersons of the department.
3. Aviation department chairpersons and directors reported being in their positions for number of years were: 35% had been in their position 1-5 years, 42% 6-10 years and 23% more than ten years.
4. Degrees held by the aviation department chairpersons and directors were 11% held doctorate degrees, 73% held master's degrees, 15% held bachelor's degrees and 1% held special degrees.

Research Question Number Two

What is the number of students and minority students enrolled in UAA colleges and universities professional pilot training programs in the North East, South East, Central, North West and South West regions of the United States?

1. Northeast region reported 51% or 28 schools having students enrolled in professional pilot programs. The report indicated 16% or 9 schools having between 1-100 students enrolled in the professional pilot programs; between 101-200 student enrollment 17 schools or 31% of the 55 schools reporting had students enrolled in the professional pilot programs; 2% or 1 school reported having between 201-300 students enrolled in the program; 2% or 1 school had students between 301-400 in the North East region and 0% reported having over 400 students enrolled in the program.
2. South East region reported 7% or 4 schools having students enrolled in professional pilot programs. The surveys further reported between 1-100 students 2 schools reported or 4%; between 101-200 one school reported or 2%; between 201-300 no schools or 0% reported; between 301-400 1 school reported or 2%; and above 400 no schools reported or 0%.
3. The Central Region reported having 13% schools with students enrolled in professional pilot programs. Further reports indicated between 1-100 students enrolled in professional pilot programs were 3 or 5%; between 101-200 two schools reported in the Central region or 4%; between 201-300 no schools reported or 0%; between 301-400 one school or 2% reported; and above 400 one school or 2% reported.

4. The North West region reported 6% or 3 schools reported having students enrolled in the professional pilot programs. The study reported between 1-100 students one school or 2%; between 101-200 students one school or 2%; between 201-300 students no schools or 0%; between 301-400 one school or 2%; and above 400 no school or 0% having students enrolled in the professional pilot programs..
5. The South West region reported between 1-100 students one school or 2%; between 101-200 four schools or 7%; between 201-300 five schools or 9%; between 301-400 2 schools or 4%; and above 400 one school or 2% having students enrolled in the professional pilot programs.

Research Question Number Three

Are minority students in any other aviation related program or programs?

1. African Americans reported 91% in the Professional Pilot Program and 9% in Air Traffic Control training.
2. Asian Americans reported 100% in the Professional Pilot program.
3. Native Americans reported 100% in mechanical training.
4. Women reported 85% in the Professional Pilot Program and 15% in Administration.

Research Question Number Four

What are the recruitment programs in your UAA colleges and universities aviation departments?

1. Reaching out to high school and junior high school students through campus tours, workshops, career days, scholarships.
2. Aviation conferences inviting high school students.
3. Visitation to counselors leaving brochures for students
4. Field trips for Elementary to High school students visiting airplane simulators.

Research Question Number Five

What are the recruitment programs particularly for minorities in UAA colleges and universities aviation departments?

1. Only two schools reported having special recruitment programs for minorities. The special recruitment programs were hiring a diverse faculty and providing scholarships for women only.

Research Question Number Six (Telephone interviews with African American pilots)

What are some of the perceived problems as to why there are so few minorities in the field of aviation, particularly the professional pilot programs?

African American pilots believe lack of exposure to the aviation field is a problem. The minority pilots were not given credit for their accomplishments. They were stereotyped as not being smart enough to fly. Therefore, the major airlines would not hire a minority pilot for fear of having disasters.

Research Question Number Seven (Telephone interview
with African American pilots)

What could colleges, universities and minority organizations do to help increase the number of minorities entering into the field of aviation, particularly in the professional pilot programs?

African American pilots recommended having national and statewide workshops for public school students. This will expose them to the field of aviation. This workshop will have on board several successful minority pilots talking to the students.

1. Visit areas where minorities particularly live – visit homes door-to-door.
2. Scholarships should be provided from the different minority organizations for minority students to enter the field of aviation.
3. Each minority Pilot Organization should give a minimum of five scholarships to minority students. This would certainly open the door to expose minority students to the field of aviation across the nation.

Research Question Number Eight (Telephone Interviews
with African American Pilots)

What are the perceived constraints that preclude individuals from entering into an aviation course of study, particularly the professional pilot programs?

African American pilots identified individual confidence and proper academic preparation as two components necessary for students to be successful in aviation course work. If these components aren't met, minorities perceive the aviation course work to be

too difficult. The high cost of aviation flight courses was mentioned by all interviewed as a major problem for many minorities.

Conclusions

Minorities have a very low representation in the field of aviation particularly as pilots, when compared to the national number of students in the field of aviation and the national number of people with careers in the field of aviation, Based on the findings of this study, something must be done to increase the number of minorities in the field of aviation, particularly as pilots.

The researcher has drawn the following conclusions based upon the findings of this study:

1. Minorities have played an important role in the history of aviation, yet their struggles to become pilots or have a career in aviation were many.
2. It was the perception of African American pilots that minorities still have a problem of being prejudged by others as to their skills, honesty, motivation and dedication.
3. According to the American Council on Education (2003) the enrollment of minorities in colleges and universities has increased from two million to four million. Therefore, with the proper activities making students aware of the field of aviation, the minority enrollment in the aviation departments at UAA colleges and universities should have increased also.
4. It was the perception of African American pilots that counselors, faculty and staff members at colleges and universities believe that becoming a

pilot or even being in the field of aviation is not obtainable for minorities, especially inner city minorities.

5. UAA colleges and universities do not have special recruitment for minority students. Two schools reported having special recruitment. Both schools were historically Black institutions. The recruitment procedures were (1) Hiring a diverse faculty and staff and (2) providing scholarships for women only.
6. Less than 10 % of minority students were pursuing careers in aviation in UAA colleges and universities.
7. The curriculum in aviation at the UAA colleges and universities is similar. All schools required general education courses (Mathematics, English, History etc.), and other courses included Management, Business, Aviation Flight Education, Professional Piloting, and many other aviation courses.
8. There was no data to indicate whether the course curriculum is a hindrance to minority students enrolling in the field of aviation. Minority students enrolled in aviation were basically doing well.

Recommendations

Because the field of aviation is rapidly growing, an apparent disproportional representation of minorities in the field of aviation was the problem addressed in this study. The following recommendations are made and hopefully will be used for curriculum development, program planning and recruitment procedures for attracting minorities into the field of aviation:

1. It is recommended that UAA college and university members use special recruitment events to encourage minorities to choose a career in aviation particularly as pilots. Today one in three children nationwide is from an ethnic or racial minority group, one in seven speaks a language other than English and one in 15 was born outside of the United States. Minorities recognize that they belong to a less-favored group and this usually affects the decisions they make. Some minority students lack exposure and confidence to enter the field of aviation. They should be encouraged to choose a career in an area as challenging as aviation, thus building confidence that they really can succeed.
2. Many minorities do not have the means to pursue a career in aviation. Therefore, special scholarships or funding to visit aviation facilities should be awarded.
3. The UAA should encourage its college and university members to hire a diverse faculty and staff. The diverse staff members should have the responsibility of recruiting in their own minority group. Some of the best recruiting is done by one of its own.
4. The UAA should encourage high schools in their area to offer basic aviation courses. This can be brought in through the vocational education department. Most high schools already have Vo-Ag, Home Economics and Vocational business classes. To offer vocational classes in Aviation should not be a problem.
5. Minority pilots from such groups as Black Pilot Association, Aztec Eagles,

and other minority aviation groups should invite public school students into their workshops, increasing their knowledge of careers in aviation. A minority student being recruited into a field by his/her own kind, will most likely pay attention and feel comfortable. They will feel that they too can make it after hearing of the successes of their own.

6. Minority students have not heard of famous minorities such as Bessie Coleman, the Tuskegee Airmen, The Aztec Eagles, Eugene Bullard, Linda Oaumels and General Benjamin O. Davis. Minority Aviation Associations should make it their priority to educate minority students by making them aware of these role models in aviation. They should visit public schools starting with the elementary schools and bring posters and pictures of these famous people in the field of aviation.
7. Minority Aviation Association organizations should start in their neighborhoods informing and exposing children to the field of aviation. Each minority member should recruit in his/her own areas.
8. This researcher recommends that additional research be undertaken by Oklahoma college and university graduate students to develop an understanding of the perceptions of Hispanic American pilots, Asian American pilots, Native American pilots, and women pilots. The African American pilot perception should be expanded, not only in Oklahoma, but nationwide. This research should be used to identify, develop, and implement new and innovative programs to motivate minorities to pursue aviation careers. Public grants should be obtained to support this research.

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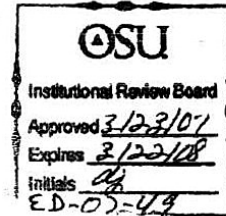
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APPENDIXES

APPENDIX A
LETTER OF INTRODUCTION

January 15, 2007



Dear Colleague:

The field of aviation is rapidly growing. During today's time more people are flying, rich as well as poor, and are no longer riding the busses or trains to their destinations. Since the beginning of aviation, minorities have been underrepresented in the field of aviation, particularly as pilots. Because there are so few minorities in aviation, are United Aviation Association (UAA) colleges and universities doing an effective job in recruiting minorities in this field.

As a doctoral student at Oklahoma State University in Stillwater, Oklahoma, I am studying what causes minorities to have such poor representation in aviation. In order to determine this study, your responses and input on a national survey will provide needed information for this study. Data will be collected when the IRB receives final approval and continue for one year. Summary data will be stored in a locked file cabinet in the researcher's office for a one year period and only available to the researcher. Additionally, summary of this data will be available to each respondent. Hopefully, the outcome of this survey will help in recruiting minorities in the field of aviation, particularly as pilots.

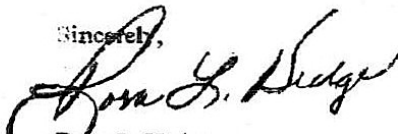
Please take a few minutes of your valuable time to complete this survey and return it in the self-addressed envelope. The responses are strictly confidential and there is no known risks associated with this project which are greater than those ordinarily encountered in daily life. **Participation is on a voluntary basis and there is not a penalty for refusing to participate.** If you do not wish to participate, please return the uncompleted survey in the enclosed return envelope.

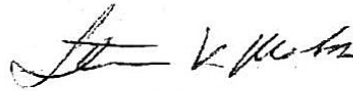
If you have questions concerning this study, please feel free to contact Rosa L. Hedge 405.285.2619 or Dr. Steven K. Marks, 405.744.7015.

If you have questions concerning your rights as a volunteer in this research please contact Dr. Sue C. Jacobs, IRB Chair, 219 Cordell North, OSU, Stillwater, OK 74078 or irb@okstate.edu.

Thank you for your assistance in completing this study.

Sincerely,


Rosa L. Hedge
Doctoral Student


Steven K. Marks, Ed.D.
Professor
Aviation and Space Education

APPENDIX B
SURVEY INSTRUMENT

Aviation and Space

Please take a few minutes of your valuable time to answer the following questions concerning aviation recruitment and minority enrollment in the field of aviation at your institution.

Instructors, Directors, Professors

1. Gender:
 - a. Male
 - B. Female

2. Race/Ethnicity:
 - a. African American
 - b. Asian
 - c. Hispanic
 - d. American Indian
 - e. White
 - f. Other please specify_____

3. Present Position:

4. Number of years in present position:

5. Highest level of education:
 - a. Associate degree
 - b. Bachelors
 - c. Masters
 - d. Doctorate
 - e. Specialist

Students:

1. Approximate number of students enrolled in your institution.

2. Approximate number of students enrolled in your department:
 1-100 ; 101-200 ; 201-300 ; 301-400 ; above 400

3. Approximate number of minorities enrolled in your department:

Minority	4 or less	5-25	26-30	31-40	41-50	Above 50
African AM.						
Asian						
Am. Indian						
Hispanic						
Women						

4. Area of concentration of minorities in your department:

Minority	Pilot	Admin.	Mechanical	Other
African Am.				
Asian				
Am. Indian				
Hispanic				
Women				

5. Briefly describe the department's recruitment procedures:

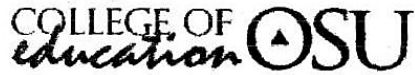
6. Briefly describe the department's recruitment procedure(s) for recruiting minorities, if any.

Thank you for your response.

APPENDIX C
TELEPHONE INTERVIEW QUESTIONS

1. How did you earn your pilot certificate, i.e., military, college/university, or private institution?
2. What inspired you to become a pilot?
3. What do you feel are some of the problems as to why there are so few minority pilots?
4. What would be a good recruitment tool for colleges and universities to use to attract minorities into the professional pilot program?
5. How can colleges and universities better market the idea of becoming a pilot?
6. What perceived problems do you feel minorities have that would hinder them in entering the field of aviation, particularly the professional pilot programs?

APPENDIX D
CURRICULUM OKLAHOMA STATE UNIVERSITY



Bachelor of Science in Aviation Sciences

[Go back to Aviation Home Page](#)

Summary of Course Requirements:

Total number of hours required for degree	120
Number of hours in General Education	43
Number of hours in degree program core (option dependent)	71-57
Number of hours in guided electives	9-20

Description of Required Courses:

General Education Courses:(43 hours)

- 9 hours English Composition and Oral Communication:
 - ENGL 1113-Freshman Composition I (or)
ENGL 1313-Critical Analysis and Writing I
 - ENGL 1213-Freshman Composition II (or)
ENGL 1413-Critical Analysis Writing II (or)
ENGL 3323-Technical Writing
 - SPCH 2713-Introduction to Speech Communication
- 6 hours American History and Government
 - HIST 1103-Survey of American History
 - POLS 1113-American Government
- 6 hours Analytical and Quantitative Thought
 - MATH 1483-Mathematical Functions and Their Use
 - MATH 1493-Applications of Modern Mathematics (or)
 - MATH 1513-College Algebra
 - MATH 1613-Trigonometry
- 6 hours Humanities
 - Any course designated Humanities
- 7 hours Natural Sciences
 - GEOG 3033-Meteorology (Pilot Option)
 - PHYSC 1114-General Physics (or) (Pilot Option)
 - BIOL 1114-Introductory Biology
 - Any course designated (L)
- 6 hours Social and Behavioral Sciences
 - ECON 2103-Introduction to Microeconomics
 - PSYC 1113-Introductory Psychology
- 3 hours International Dimension
 - Any course designated (I)

Electives (14 hours)

Courses from accredited institution may be used to fulfill this requirement. Hours required varies with degree option.

Major Requirements(62 hours)

http://www.okstate.edu/education/aviation/bs_requirements.htm

11/1/2007

Professional Pilot

- o AVED 1113-Theory of Flight
- o AVED 1403-Basic Aeronautics
- o AVED 2113-History of Aviation (or)
- o AVED 2203-Impact of Aviation and Space Exploration on Society
- o AVED 2122-Commercial Flight Lab I
- o AVED 2132-Commercial Flight Lab II
- o AVED 2142-Commercial Flight Lab III
- o AVED 2213-Theory of Instrument Flight
- o AVED 2313-Theory of Commercial Flight
- o AVED 3231-Theory of Multi-Engine Flight
- o AVED 3341-Multi-Engine Flight Lab
- o AVED 3243-Human Factors in Aviation
- o AVED 3333-Advanced Aircraft Systems
- o AVED 3443-Aviation Law
- o AVED 3533-Aircraft Turbine Engine Operation
- o AVED 3663-Air Transportation
- o AVED 4113-Aviation Safety
- o AVED 4133-Principles of Flight Instruction
- o AVED 4213-Current Trends and Issues in Aviation
- o AVED 4232-Flight Instructor Flight Lab
- o AVED 4303-Aviation Weather
- o AVED 4703-Crew Resource Management
- o LSB 3213-Legal and Regulatory Environment of Business
- o MSIS 2103-Business Computer Concepts and Applications

Aviation Management

- o AVED 2113-History of Aviation (or)
 - o AVED 2203-Impact of Aviation and Space Exploration on Society
 - o AVED 3443-Aviation Law
 - o AVED 3513-Aviation Management
 - o AVED 3523-Airport Planning and Management
 - o AVED 3553-General Aviation Management
 - o AVED 3563-Aviation Marketing
 - o AVED 3573-Aviation Finance
 - o AVED 3663-Airport Transportation: The Industry
 - o AVED 4113-Aviation Safety
 - o AVED 4213-Current Trends & Issues in Aviation
 - o AVED 4953 Corporate Aviation Management
 - o LSB 3213-Legal and Regulatory Environment of Business
 - o MKTG 3213-Marketing
 - o MSIS 2103-Business Computer Concepts and Applications
- 12 hrs upper-division
 - Recommended: AVED,ECON,FIN,MGMT,MKTG AND/OR MSIS

Technical Services

- AVED 2113-History of Education (or)

http://www.okstate.edu/education/aviation/bs_requirements.htm

11/1/2007

APPENDIX E
PROFESSIONAL PILOT CURRICULUM
OKLAHOMA STATE UNIVERSITY

OKLAHOMA STATE UNIVERSITY

GENERAL REQUIREMENTS

COLLEGE OF

EDUCATION

BACHELOR OF SCIENCE IN AVIATION SCIENCES

For students matriculating:

Academic Year 2005-2006

DEGREE
AVIATION SCIENCES

Total hours 120

MAJOR
(PROFESSIONAL PILOT)

Minimum overall grade-point average 2.00

Other GPA requirements, see below.

General Education Requirements <u>40</u> Hours			Major Requirements <u>73</u> Hours	
Area	Hrs.	To Be Selected From	Minimum GPA 2.50 with a minimum grade of "C" in each course	
English Composition and Oral Communication	9	ENGL 1113 or 1313; and 1213 or 1413 or 3323. (See Academic Regulations 3.5 in Catalog) SPCH 2713	AVED 1114	AVED 3341
American History and Government	6	HIST 1103 and POLS 1113	AVED 1222	AVED 3443
Analytical and Quantitative Thought (A)	6	MATH 1483, 1493, 1513, or 1613	AVED 1403	AVED 3453
Humanities (H)	6	6 hours designated (H). One course must be lower division.	AVED 2113	AVED 3533
Natural Sciences (N)	7	GEOG 3033 and PHYS 1114	AVED 2122	AVED 3863
Social and Behavioral Sciences (S)	6	ECON 2103 and PSYC 1113	AVED 2132	AVED 4113
International Dimension (I)	-	Any course designated (I).	AVED 2142	AVED 4133
Scientific Investigation (L)	-	Any course designated (L). Students are encouraged to meet the requirement in their selection of (N) course work.	AVED 2142	AVED 4133
College/Departmental Requirements <u>7</u> Hours			AVED 2213	AVED 4232
EDUC 1111			AVED 2313	AVED 4303
Recommended:			AVED 2513	AVED 4333
AVED 3433			AVED 3231	AVED 4353
AVED 3513			AVED 3243	AVED 4653
AVED 3543			AVED 3333	AVED 4703
AVED 3563				MSIS 2103
AVED 3573				
AVED 4100				
AVED 4200				
AVED 4331				
AVED 4663				
AVED 4771				
AVED 4953				
Other Requirements:				
Sixty hours must be completed at a senior college and must include 40 hours upper-division course work.				
A 2.50 GPA is required in the Major Requirements with no grade below a "C."				
Students will be held responsible for degree requirements in effect at the time of matriculation (date of first enrollment) and any changes that are made, so long as these changes do not result in semester credit hours being added or do not delay graduation.				

Pamela Fry
DEAN

ED-9

Ed Watson
DEPARTMENT HEAD

**AVIATION SCIENCES 4 YEAR PLAN
PROFESSIONAL PILOT**

Freshman Year

<p><u>Fall</u> EDUC 1111 AVED 1114 AVED 1222 ENGL 1113 HIST 1103 MATH (A)—3 hours Flying Costs Approximately \$4,684</p>	<p><u>Spring</u> AVED 1403 ENGL 1213 POLS 1113 MATH (A)—3 hours Humanities (H)—3 hours (lower division)</p>
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Sophomore Year

<p><u>Fall</u> AVED 2213 AVED 2122 AVED 2113 MSIS 2103 PHYS 1114 Flying Costs Approximately \$4,440</p>	<p><u>Spring</u> AVED 2132 AVED 2313 Humanities (H)—3 hours ECON 2103 PSYC 1113 Flying Costs Approximately \$4,900</p>
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Junior Year

<p><u>Fall</u> AVED 2142 AVED 3231 AVED 3333 GEOG 3033 College/Dept Electives—6 hours Flying Costs Approximately \$6,660</p>	<p><u>Spring</u> AVED 3243 AVED 3341 AVED 3443 AVED 4133 AVED 3533 SPCH 2713 Flying Costs Approximately \$3,135</p>
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Senior Year

<p><u>Fall</u> AVED 3663 AVED 4232 AVED 4303 AVED 4643 AVED 4333 Flying Costs Approximately \$3,195</p>	<p><u>Spring</u> AVED 4113 AVED 4653 AVED 4703 College/Dept Electives—6 hours</p>
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Sixty hours must be completed at a senior college and must include 40 upper-division hours.

The student must have 120 total hours with a 2.0 graduation/retention GPA.

A 2.50 GPA is required in the Major Requirements with no grade below a "C."

THIS PLAN IS ONLY A GUIDELINE. PLEASE REFER TO YOUR DEGREE REQUIREMENT SHEET FOR SPECIFIC REQUIREMENTS.

APPENDIX F
HAMPTON UNIVERSITY PROFESSIONAL FLIGHT
EDUCATION CURRICULUM

HAMPTON UNIVERSITY

FLIGHT EDUCATION

In addition to the General Education courses listed previously, Flight Education majors required to complete the following:

Aviation Home
Air Traffic Control
Aviation Electronics
Aviation Management
Flight Education
Aviation Computer Science
Scholarship Information
Course Descriptions
Labs & Equipment
Aviation Organizations
School of Engineering & Technology
Academics Home
HU Homepage

Related Courses		Credit Hour
CHE150	Chemistry Problem Solving	3
MAT117	Pre-Calculus	3
MAT130	Calculus	3
MAT205	Statistics	3
MGT205	Computer Concepts in Business	3
MGT301	Business Organization and Mgt	3
MGT400	Organizational Behavior	3
PHY201	Intro to Physics I	4
PHY215	Intro to Physics I Lab	1
Elective	Sociology Elective	3
<i>(All major courses must be completed with a grade of "C" or better)</i>		
Major Courses		Credit Hour
AVN201	Aviation Foundations I	3
AVN202	Aviation Foundations II	3
AVN203	Private Pilot Skill Enhancement	3
AVN215	Private Pilot Lab I	1
AVN216	Private Pilot Lab II	1
AVN301	Aviation Safety	3
AVN302	Aviation Legislation	3
AVN304	Aviation Transportation	3
AVN310	Crew Resource Management I	3
AVN311	Instrument Rating	3
AVN312	Commercial Pilot Certification	3
AVN315	Instrument Rating Lab I	1
AVN316	Instrument Rating Lab II	1
AVN321	Certified Flight Instructor	3
AVN325	Tower Operations I	3
AVN335	Commercial Pilot Lab I	1
AVN336	Commercial Pilot Lab II	1
AVN406	Adv Aerodynamics/Aircraft Performance	3
AVN407	Advanced Aircraft Systems	3
AVN415	Certified Flight Instructor Lab I	1
AVN416	Certified Flight Instructor Lab II	1
AVNXXX	Aviation Electives *	6
PHY303	Meteorology	3
Total Hours:		120
<small>* Aviation electives include AVN courses that are not specifically required by the curriculum, MGT370 (Transportation Studies), and PHY303 (Meteorology).</small>		

APPENDIX G
IRB APPROVAL FORM

Oklahoma State University Institutional Review Board

Date: Friday, March 23, 2007
IRB Application No ED0749
Proposal Title: Exploration in Minority Recruitment in the Aviation Industry

Reviewed and Exempt
Processed as:

Status Recommended by Reviewer(s): Approved Protocol Expires: 3/22/2008

Principal Investigator(s)

Rosa Hedge
2704 Hidden Valley
Edmond, OK 73013

Steven Marks
300 Cordell North
Stillwater, OK 74078

The IRB application referenced above has been approved. It is the judgment of the reviewers that the rights and welfare of individuals who may be asked to participate in this study will be respected, and that the research will be conducted in a manner consistent with the IRB requirements as outlined in section 45 CFR 46.

The final versions of any printed recruitment, consent and assent documents bearing the IRB approval stamp are attached to this letter. These are the versions that must be used during the study.

As Principal Investigator, it is your responsibility to do the following:

1. Conduct this study exactly as it has been approved. Any modifications to the research protocol must be submitted with the appropriate signatures for IRB approval.
2. Submit a request for continuation if the study extends beyond the approval period of one calendar year. This continuation must receive IRB review and approval before the research can continue.
3. Report any adverse events to the IRB Chair promptly. Adverse events are those which are unanticipated and impact the subjects during the course of this research; and
4. Notify the IRB office in writing when your research project is complete.

Please note that approved protocols are subject to monitoring by the IRB and that the IRB office has the authority to inspect research records associated with this protocol at any time. If you have questions about the IRB procedures or need any assistance from the Board, please contact Beth McTernan in 219 Cordell North (phone: 405-744-5700, beth.mcternan@okstate.edu).

Sincerely,



Sue C. Jacobs, Chair
Institutional Review Board

VITA

Rosa L. Hedge

Candidate for the Degree of

Doctor of Education

Thesis: A REVIEW OF MINORITY RECRUITMENT PROGRAMS IN AVIATION
EDUCATION PROGRAMS

Major Field: Applied Educational Studies

Biographical:

Personal Data: Born in Muskogee, Oklahoma on June 15, 1946. Daughter of the late Reverend C. L. Potter and Vera Mae Potter, four siblings, married to Dr. Clarence A. Hedge for 41 years, with three children and 9 grandchildren.

Education: Graduated from Booker T. Washington High School, Tulsa, Oklahoma in May, 1964. Received an Associate of Arts Degree from Coffeyville Junior College, May, 1967; received a Bachelor of Science Degree from Northeastern Oklahoma State University, Tahlequah, Oklahoma, July, 1975; received a Master of Science Degree from Langston University, May, 1991; presently pursuing a Doctor of Education Degree from Oklahoma State University, December, 2007.

Experience: Tulsa Economic Task Force, employed as an Accountant, 1967-1970; General Motors Acceptance Corporation, employed as a General Clerk 1970 – 1974; Langston University employed as a Payroll Accountant 1976-1979; Guthrie Public Schools employed as a Business/Computer Teacher 1979-Present.

Membership: Greater Mount Olive Baptist Church, Oklahoma City, Oklahoma; Alpha Kappa Alpha Sorority; Kappa Delta Phi Honorary Society; Who's Who among American Teachers; Member of the Chancellor's List; Daughter of Isis.

Honors and Award: Member of the Chancellor's List; Who's Who among American Teachers 2000 edition; Teacher of the Year Guthrie Public Schools; Outstanding Educator of the Year, City of Langston, Langston, Oklahoma 1998.

Name: Rosa L. Hedge

Date of Degree: December 2007

Institution: Oklahoma State University

Location: Stillwater, Oklahoma

Title of Study: A REVIEW OF MINORITY RECRUITMENT PROGRAMS IN
AVIATION EDUCATION PROGRAMS

Pages of Study: 99

Candidate for the Degree of Doctor of Education

Major Field: Applied Educational Studies

Scope and Method of Study: The purpose of this study was to determine what causes minorities to have such poor representation in the aviation field, particularly in the professional pilot programs; to determine the number of minorities in professional pilot programs; to identify minority recruitment programs in aviation and in professional pilot training programs; and to determine the perceptions of African American pilots. An 11-question survey was sent to University Aviation Association colleges and universities directors, department chairpersons and instructors of aviation departments. A personal telephone interview was conducted with African American pilots who answered six questions.

Findings and Conclusions: Of the 55 schools responding, the professors, directors and instructors in the aviation department were 85% Caucasian, 5% African American, 5% Hispanic, 5% Asian American and 0% Native Americans. Seventy-Eight percent of them were males, 13% were females and 9 % were male/female sharing the department. Sixteen schools had five or fewer African American students, 9 reported 6-25, 26 reported 26-30, 1 reported 41-30, and 3 had above 50 in their department. Most of the schools reporting had basically the same recruitment programs and only two had special recruitment for minorities. Perceptions of the African American pilots were that lack of exposure to aviation and being academically unprepared were the great hindrances to minorities entering the aviation field, along with the high cost involved. They recommended more personal involvement by minorities in reaching children as young as third grade to expose them to aviation and encourage them to prepare academically. They recommended minority organizations offer scholarships to professional pilot programs to defray the expense. Further research is recommended to understand the perceptions of Hispanics, Asian Americans, Native Americans, and women as they apply to their under-representation in professional pilot programs; and to expand nationwide on this research on perceptions of African American pilots in Oklahoma.

ADVISER'S APPROVAL _____

Steven K. Marks