

STATUS REPORT: AN AIRLINE-UNIVERSITY COOPERATIVE PILOT CAREER PROGRAM

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Abstract

A descriptive study of the United Airlines--Southern Illinois University at Carbondale Cooperative Agreement in Aviation Flight and Aviation Management was accomplished in order to detail the selection, training, and hiring results of the agreement. This study showed that there have been over 100 SIUC student participants since 1987 in the short and long internships that were provided for in this agreement. The 93 short internship participants had the following average interning qualifications: 445 total flight hours, 30.0 multi-engine hours, and a 3.32 grade point average on a 4.0 scale. Furthermore, of the 93 short internships, 41 or 44.1 percent were selected to proceed on to a semester-long internship at various United Airlines Flight operation locations around the nation. Of those SIUC students successfully completing the internship, a total of 19 have been hired by United Airlines as Flight Officers since such hires began in 1989. Most of those hired are working as Boeing 727 Flight Engineers. Some have already upgraded to Boeing 737 First Officer positions. While the agreement is successful in many ways, the reasons for United not hiring successful long internships should be carefully studied in future research efforts. Also, the characteristics of a successful SIUC long internship (for example, of those hired by United) should be more completely identified by United at the time of employment.

Introduction

The purpose of this paper is to present the results of a descriptive study of the United Airlines (United)--Southern Illinois University at Carbondale (SIUC) Cooperative Program in Aviation Flight and Aviation Management. Started in July 1989, this agreement is the longest-standing formal linkage between a major U.S. airline and a university. The goals of this presentation of data are to: 1) Describe the United--SIUC agreement (including the internships); 2) Describe the selection, training, and hiring results of the agreement to date; 3) Describe the benefits of the agreement to date (to both the airline and the university); and, 4) Present some concluding remarks about the results and benefits of the agreement to date.

Background

The United States domestic airline industry expanded overall hiring significantly since the late 1970's. For example, the total number of airline industry employees grew from 329,303 in 1978 to 545,809 in 1990, or an overall growth of 65.7 percent (Air Transport Association). As part of this overall expansion of employment, airline industry pilot hiring has also grown. In 1978 the airline industry employed 28,336 pilots and flight engineers while by 1990 this figure had grown to 47,131, or a 66.3 percent increase (Air Transport Association). This expansion influenced two seemingly contradictory phenomena: (1.) the shrinking "pool" of quality, qualified pilot applicants, including minority applicants; and, (2.) increasing interest among people in general in a career with the expanding airline industry, particularly in the

cockpit-related flying positions. This interest was reflected in a broad resurgence of enrollments at university, college and community college-based flight degree programs.

The airline industry's search for an answer to the need for qualified, quality pilots to become part of this expansion was complicated by two other events.

1. The increasing number of potential pilot retirements due to a merging of the mandatory "Age 60" retirement rule and a significant "bulge" in airline hiring during the late 60's. This merging of events will, for example, force 125 to 350 pilots to retire each year through the year 2000 from United Airlines alone (Kennedy, 1988).
2. The increasing difficulty in hiring significant numbers of military-trained pilots due to the small size of the U.S. Military in general (as compared to the Vietnam War era) and the efforts of the military to hold on to their trained pilot assets for as long as possible. Since the military has been a significant historical source for new hired airline pilots, some airlines began looking for additional sources of pilots.

One of the airline industry's responses to this situation was to turn to the nation's university aviation programs for a partial answer to the question of developing a new "civilian" source of pilots for the nation's airlines. At least three of the nation's major airlines at one time entered into some form of agreement or program in conjunction with the nation's university aviation program.

<u>Airline</u>	<u>University Partners</u>
1. United Airlines	A. Southern Illinois University at Carbondale (July 1987) B. Florida Institute of Technology (1989) C. Embry-Riddle Aeronautical University (1991) D. At least fourteen other universities involved with no formal written agreement.
2. Northwest Airlines	A. University of North Dakota (Grand Forks) (Agreement terminated 9/89)
3. Eastern Airlines	A. Miami-Dade Community College, Florida B. Jacinto Community College, Texas

At least two other U.S. domestic airlines, American and Trans World Airlines, have looked into some form of university-related programs. At this juncton, only United remains committed to a university-related program.

Goals of the United--SIUC Agreement.

United Airlines ("United") and Southern Illinois University at Carbondale ("SIUC") have established a close working relationship to form the Aviation Flight/Aviation Management Cooperative Program ("Cooperative Program") for selected SIUC students. The purpose of this program is to provide corporate assistance to the University and its students, while at the same time providing a well-trained pool of future Flight Officer applicants to help meet United's needs. The following paragraphs describe what United and SIUC hoped to derive from the agreement when it was signed.

United, first of all, hoped to improve its supply of quality flight officer candidates by tapping a source of civilian pilot candidates not previously tapped. Second, United hoped that such agreements would be a tool for minority recruitment since they were "under the gun" to improve such recruitment due to mandates from the federal government. Third, United was impressed with the overall quality of the aviation program at SIUC (Kennedy).

SIUC, for its part, hoped to gain valuable training experience through a major airline for as many of its undergraduate students as possible. These experiments were two "short" internships of one to two weeks twice a year (20 students total), a "long" internship (a full semester) for selected "short" interns, and a 727 type rating for all long interns (upon the successful conclusion of the long internship). Second, SIUC hoped to obtain some training experiences for faculty through the agreement. Third, SIUC hoped to benefit through the exchange of training information with the staff of the United Airlines Flight center. And, finally, even though United was not hiring pilots at the time of the signing of the agreement in 1987, SIUC hoped that the agreement would ultimately result in the hiring of some of its graduates as United Airlines flight officers (United Airlines, Inc.).

Description of the United--SIUC Internship Process

Central to the success of the United Airlines--Southern Illinois University Cooperative Agreement, to date, has been the two levels of internship experience provided to student participants in the agreement. The first level of internship, labeled as the "United Airlines Off Campus Study Program" in the "Working Guidelines" of the agreement (or "Short Internship" by the participants), is a one-to-two week training program held at the United Airlines Training Center in Denver, Colorado.

In order to be selected for the United Airlines--Southern Illinois University at Carbondale cooperative program "short internship," a student must:

1. Have successfully completed at least two flight licenses at SIUC's FAR 141 flight training program;
2. Hold a Commercial Pilot's License with an Instrument Rating in Multi-Engine Aircraft;
3. Be currently enrolled in SIUC's Aviation Management program (graduates of the program are not allowed to apply);
4. Have at least a 2.75 overall grade point average on a 4.0 scale; and,
5. Apply during one of the two applicant periods held each year in November and April.

Applicants are required to submit:

1. A letter of interest;
2. A resume, including flight hours;
3. A photocopy of all FAA flight licenses and medical certificates;
4. Their latest SIUC transcript;
5. Their latest SIUC grade report (to verify grade point average).

Applicants for the "short internship" are then ranked individually by a total of six SIUC faculty members, three from the Aviation Flight program and three from the Aviation Management program. The ranking is based on each faculty members individual perception of how the candidates meet the program criteria. The applicants were ranked in the following manner: #1 is best, #2 is next best, etc. All applicants are ranked by each faculty evaluator. All six scores for each student are added together. The ten lowest

scoring (therefore, the highest ranked applicants) applicants are the successful candidates. Interviews are not normally held. The "short internship" consists of:

1. All or portions of any ground school (typically 727 or 767);
2. A practice flight officer employment interview;
3. Lectures on such topics as Cockpit Resource Management, wind shear and other airline flight safety and training issues;
4. A walk-around/pre-flight of a United Airlines aircraft on the ramp at Denver Stapleton International Airport;
5. Participation in a group study project related to hypothetical future planning issues for United Airlines; and
6. Depending upon training resources at the time of the "short internship," 1 to 2 hours of simulator time in one of United's full-motion aircraft simulators.

At the conclusion of the "short internship" all of the participants are evaluated and ranked by United Airlines for selection in the "Long Internship" (also called the "United Airlines Occupational Internship" in the working guidelines of the original United--SIUC agreement). The "long internship" consists of being assigned to one of four locations in the United Airlines system for a semester-long (4 1/2 months) internship. The four locations are the Flight Training Center in Denver, Colorado; the Executive Offices in Elk Grove Village (Chicago area), Illinois; the Chicago Chief Pilot/Domicile offices at Chicago-O'Hare International Airport and, Washington-Dulles-International Airport. The students are assigned a specific supervisor in a specific area of the airline (such as Flight Dispatch, 747-400 Training Fleet Captain, etc.). In addition to working for that supervisor, each student is given the opportunity for simulator time, facility tours, and other learning experiences. Once a student finishes the "long internship" and graduates with the B.S. degree in Aviation Management from SIUC, then the student is eligible for a flight officer employment interview at United assuming the student meets the minimum qualifications for flight officer employment at United Airlines. Those students not selected for the long internship, but who successfully completed the short internship, are eligible for a flight officer employment interview when they reach 1000 PIC (Pilot in Command) time and their B.S. degree in Aviation Management. This latter arrangement was implemented in 1991 so no hiring results are available so far.

RESULTS OF THE AGREEMENT

Selection Results. The purpose of this section is to report the entering qualifications of the students in the United--SIUC "Short" and "Long" Internship groups. As already noted in a previous section of this paper, the applicant process to this program is competitive with minimum criteria. As reflected in Table 1, the entering qualifications of each short internship group varies somewhat with average total flight hours ranging from a low of 304 to a high of 530. The average multi-engine flight hours of each entering group of short interns ranges from a high of 63.0 to a low of 11.1. Finally, the average overall grade point average (on a 4.0 scale) of each short internship group ranges from a high of 3.46 to a low of 3.26. The overall average measure for 8 of the 9 groups to date are 445 total hours of flight time, 30.0 multi-engine hours and 3.32 overall grade point average on a 4.0 scale.

TABLE 1
UNITED--SIUC SHORT INTERNS ENTERING QUALIFICATIONS BY GROUP
1987-1991

Group #	N	Average Total Flight Hours	Average ME Hours	Average GPA
1	9	512	20.9	3.26
2	12	425	11.1	3.29
3	11	429	30.3	3.42
4	11	354	N/A*	3.28
5	10	516	63.0	3.33
6	10	N/A*	N/A*	N/A*
7	10	491	18.2	3.46
8	10	530	52.0	3.16
9	10	304	14.7	3.36
Cumulative Totals/Averages	93	445	30.0	3.32

*N/A = Not Available

Training Results. A total 93 SIUC students have, or are, participating in United Airlines "short internships." Of these 41 (or 44.1 percent) have gone on to "long internships." Of those on long internships (See Table 2) an additional 11 were selected to go on "long internships" before there was a "short internship" in place (prior to Fall 1988). This explains why there are a total of 52 "long interns"--only 41 were selected from the "short internships" and the rest were selected before the short internship was in place.

Of the 52 "long interns" 29 (55.8 percent) have served or are serving in Denver (DEN) at the Flight Training Center, 16 (27.3 percent) at United Executive Offices (EXO) in Chicago, 5 (11.5 percent) at the Chief Pilot's/Chicago Domicile office (ORD), and 1 (1.9 percent) at the Washington-Dulles International Airport Chief Pilot's Office (IAD). It should be noted that, as more possible long internship sites have been added, fewer SIUC long interns are serving in Denver each semester. This has had a tendency to diminish the "training value" of the long internship in exchange for increasing the overall airline "learning value" of the internship. For example, in Denver the long interns can frequently get simulator time. On the other hand, interns in the other locations are involved in the daily operations of the company and can frequently obtain passes to fly throughout the United System as "jumpseat" passengers. While the experiences are both valuable, the fact that the internships can now vary considerably in terms of content raises questions about the consistency of the long internships with the original goals of the United--SIUC agreement.

**TABLE 2
UNITED--SIUC "LONG" INTERNSHIP GROUPS**

Group	Semester	Number in Group	Location of Internship			
			DEN	EXO	ORD	IRD
1	Spring 1987	1	1	-	-	-
2	Summer 1987	2	2	-	-	-
3	Fall 1987	2	2	-	-	-
4	Spring 1988	3	3	-	-	-
5	Summer 1988	3	3	-	-	-
6	Fall 1988	2	2	-	-	-
7	Spring 1989	3	1	2	-	-
8	Summer 1989	4	1	3	-	-
9	Fall 1989	5	3	2	-	-
10	Spring 1990	5	3	1	1	-
11	Summer 1990	5	3	1	1	-
12	Fall 1990	4	2	1	1	-
13	Spring 1991	4	1	2	1	-
14	Summer 1991	5	1	2	1	1
15	Fall 1991	4	1	2	1	-
	Totals	52	29	16	6	1
	Percent	100.0	55.8	30.8	11.5	1.9

Hiring Results. One of the most gratifying results of the United Airlines--Southern Illinois University at Carbondale linkage has been United's hiring of SIUC graduates who had previously participated in the Cooperative Program. As reported in Table 3, a total of 19 UA/SIUC Cooperative Program participants have been hired as flight officers by United after graduation from SIUC. All of these graduates were hired as second officers, or flight engineers, largely on the Boeing 727. Initially, 3 of the 19 were assigned to other aircraft as flight engineers (one each to the DC-8, the DC-10 and the B-747). Also, at least two of these graduates have upgraded to first officer on the Boeing 737 from the initial B-727 assignment.

**TABLE 3
SIUC GRADUATES WHO WERE UA/SIUC COOPERATIVE PROGRAM PARTICIPANTS HIRED BY
UNITED AS FLIGHT OFFICERS
1989-1991**

Year	Number of SIUC "Intern" New Hires
1989	7
1990	6
1991	6
Totals	19

Source: "Hired SIU Interns AS of 03/22/91," United Airlines printout (plus updates) provided by Roger Vesely of Flight Officer Employment, United Airlines.

While the SIUC long interns have been more successful than the 10-15 percent "interview success rate" reported by United for "off the street" candidates, interview failure is still a concern. While United Airlines considers flight officer employment processing (especially for specific candidates) a matter of proprietary information, some generic categories of "knockout factors" have been identified after two years of SIUC intern processing:

1. A lack of maturity displayed during the interview process.
2. Basic flying skills such as flying holding patterns, instrument approaches, etc., as demonstrated in a Frasca simulator setup with jet reference speeds.
3. Hours flown from graduation to the time of the interview process at United (little or no flying represents a lack of interest in the career field as far as United is concerned).
4. Frequent employment changes with no good rationale (Bauserman & Vesely, 1990).

Findings and Conclusions

Based on a review of the qualifications of 83 of the 93 "short" interns, SIUC has provided United with students holding the following average qualifications:

1. 445 average total flight hours.
2. 30.0 average multi-engine flight hours.
3. A 3.32 average cumulative grade point average.

Of the 93 students participating in the "short" internship, 41 (or 44.1 percent) have participated in the "long" internship. An additional 11 SIUC students participated in the long internship prior to the initiation of the short internship, for a total of 52 SIUC "long" intern participants to date. This also means that a total of 102 SIUC students have participated in the United--SIUC Cooperative Education Program in Aviation Flight and Aviation Management since 1987. This is an average of about 25 students per year. This means that the original goal of 20 SIUC student participants per year has been exceeded.

Of the 52 SIUC "long" interns, 29 have served in Denver at the United Airlines Flight Center, 16 have served in Chicago (Elk Grove Village) at the United Airlines Executive Officers, 6 have served in Chicago at the Chief Pilots Office at O'Hare Airport and 1 has served in Washington, D.C. at the Chief Pilots Office at Dulles Airport. At the beginning of the "long" internship, all "long" interns served in Denver. However, as new locations for "long" interns were developed by United, increasing numbers of SIUC "long" interns have served at locations other than Denver. This has had the effect of removing the non-Denver located "long" interns from the "training" environment and putting them into the daily operational environment of the airline. This has been paralleled by an inability of United to provide all long interns with the 727 "type" rating that the company originally thought it could provide. The reason for this is that United Airlines' training resources have been devoted to training line pilots with little "extra" space left over for interns. The result of both of these events is that not all of SIUC's long interns have had equal or even similar experiences with United as "long" interns. Therefore, it is increasingly difficult to evaluate the reasons for success or failure of SIUC interns in the flight officer interview process. As more data becomes available, further research will be accomplished to find out if there are differences in the interview success rates of "long" interns serving in different locations.

Since early 1989, the results of the agreement began to exceed SIUC's expectations with the hiring of 19 former SIUC long interns (through July 1991) as flight officers. This step of employing former interns added a tremendous amount of credibility and recognition to the program. Also, this step takes the program beyond just a vehicle for training--it is now a "bridge" to airline industry employment for fairly young, university-age students.

The other original SIUC goals of the program, the provision of SIUC faculty with training experiences at United and the exchange of training information, have been partially met. In many cases, SIUC faculty had been given the opportunity to have training at United, but could not participate due to schedule or travel problems.

An examination of the information presented in this paper suggests that the United Airlines--Southern Illinois University at Carbondale Cooperative Program is yet another derivative of the ab initio, or "from the beginning," flight training program. In this case, there are two parts to this particular version of ab initio: a university handles the "primary" flight training portion (from private licensing to certified flight instructor) and an airline handles the airline transport aircraft type-related training portion. A major difference between this airline-university agreement and "pure" ab initio programs, such as those operated by Lufthansa or Japan Airlines, is that United Airlines does not use this agreement as a primary source of pilots. Rather, it is a supplement to its regular flight office employment process.

Another observation about this agreement is that it has given United Airlines a chance to carefully screen what are relatively low-time pilots to them, but what are relatively high-time pilots in the SIUC aviation flight/aviation management program. The result is that United is getting an early opportunity to discover whether the "best" SIUC has to offer will match the requirements of United Airlines. And, it gives SIUC students a chance to begin a long association with a major airline as a flight officer early in their careers.

The United Airlines-Southern Illinois University at Carbondale relationship has evolved significantly from its original form and content. However, there are still significant benefits to both the airline--in terms of "free" (non-paid) "long" intern assistance and high quality flight officer candidates--and the university--in terms of exposure to a major airline's training and/or operations environment and the possibility of full time employment as a flight officer. As long as this "win-win" situation continues, the agreement should continue. With United intending to take delivery of significant numbers of new aircraft throughout this decade, and with continuing "forced" retirements of senior United pilots at age 60, it will be important that United keeps all available recruiting "doors" open.

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