Impacts of Public Law 111-216:
Will the Flight Instructor Career Path Remain a Viable Option for Aspiring Airline Pilots?

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ABSTRACT

On August 1, 2010, President Obama signed Public Law 111-216. This new legislation impacts the practices of 14 CFR Part 121 air carriers, as well as dictating the requirement of all airline pilots to hold an Airline Transport Pilot (ATP) certificate. This study examines how a flight instructor in a 14 CFR Part 141 pilot school measures up to the aeronautical experience requirements of the ATP. Aeronautical experience of 174 current flight instructors employed by a Part 141 collegiate aviation program was analyzed. The results indicate that this group of flight instructors significantly lacked the required cross-country flight experience required by the ATP certificate. The research also found that the number of flight instructors aspiring to work for air carriers is on the decline.

INTRODUCTION

On August 1, 2010, President Obama signed Public Law 111-216: Airline Safety and Federal Aviation Administration (FAA) Extension Act of 2010. The primary sponsor of the bill was Rep. James Oberstar of Minnesota, who introduced it to the 111th Congress just four days prior on July 28, 2010. H.R. 5900 (2010) contains two main parts: Title I-Airport and Airway Extension and Title II-Airline Safety and Pilot Training Improvement. This research focuses on Title II and its potential impact on the nature of flight training.

Title II, Section 216, Flight Crewmember Screening and Qualifications, of the legislation includes various requirements for the hiring process of flight crewmembers. In paragraph B it states:

> ALL FLIGHT CREWMEMBERS.—Rules issued under paragraph (1) shall ensure that, after the date that is 3 years after the date of enactment of this Act, all flight crewmembers—
> (i) have obtained an airline transport pilot certificate under part 61 of title 14, Code of Federal Regulations; and
> (ii) have appropriate multi-engine aircraft flight experience, as determined by the Administrator. (H.R. 5900, 2010, pg. 20)

Additionally, Section 217, Airline Transport Pilot (ATP) Certification, goes on to state the following, "The Administrator of the Federal Aviation Administration shall conduct a rulemaking proceeding to amend part 61 of title 14, Code of Federal Regulations, to modify requirements for the issuance of an airline transport pilot certificate." (H.R. 5900, 2010, pg. 20) Minimum requirements are set forth, and include various training and/or experience in a variety of settings. The bill does state that a minimum of 1,500 total flight hours will be required. In addition to these 1,500 hours, Section 217 also requires sufficient flight hours in difficult operational conditions that may be encountered by an air carrier.

The bill also includes a specific statement to allow the FAA Administrator to grant credit towards the flight hour requirements by completing certain academic courses that will enhance safety. (H.R. 5900, 2010) No specific subject matter is identified at this time. The requirement for all Part 121 flight crewmembers to have or obtain an ATP certificate will go into effect three years after the date of enactment.

REVIEW OF LITERATURE

The aeronautical experience requirements for the ATP certificate are set forth in Part 61 of Title 14, CFR. Specifically, Part 61.159 specifies the following: 1,500 total time, including at least 500 hours of cross-country flight time, 100 hours of night flight time, and 75 hours of instrument flight time (FAR, 2010b). Table 1 includes the FAA ATP aeronautical experience requirements along with the percentage of total time breakdown for each sub-category.

The ATP requires 500 hours of cross-country time, which can account for 33% of the overall 1,500 hour requirements. This is the largest sub-category identified for the ATP certificate. The FAR's currently define cross-country time for the ATP certificate by the following:

> (vi) For the purpose of meeting the aeronautical experience requirements for an airline transport pilot certificate (except with a rotorcraft category rating), time acquired during a flight—
> (A) Conducted in an appropriate aircraft;
> (B) That is at least a straight-line distance of more than 50 nautical miles from the original point of departure; and
> (C) That involves the use of dead reckoning, pilotage, electronic navigation aids, radio aids, or other navigation systems. (FAR, 2010a)

The International Civil Aviation Organization (ICAO) has nearly identical Airline Transport Pilot's License (ATPL) requirements with the exception of cross-country time. ICAO (2006) requires 1,500 hours total time, including at least 200 hours cross-country flight time, 100 hours night flight time, and 75 hours of instrument flight time. Table 1 outlines the ICAO ATPL flight hour requirements and the percentage of time in relation to 1,500 total hours.

Table 1. *Comparison between FAA ATP and ICAO ATLP Requirements*

	FAA ATP Hours	FAA ATP Percentage of 1500	ICAO ATP Hours	ICAO ATP Percentage of 1500
Total Time	1500	NA	1500	NA
Cross-Country	500	33%	200	13%
Night	100	7%	100	7%
Instrument	75	5%	75	5%

Note. Requirements from FAR, 2010 and ICAO, 2006

The largest percentage of flight time for the ICAO ATPL is also cross-country flight time, however there is a difference of 300 hours, or 20% of the 1,500 total hours between the ICAO and FAA cross country requirements. ICAO (2006) defines Cross-Country "as a flight between a point of departure and a point of arrival following a pre-planned route using standard navigation procedures." Note that ICAO does not require a minimum distance for the cross-country flight.

The requirement that all Part 121 pilots hold an ATP certificate could potentially change the supply versus demand ratio for airlines yet no research has been published in this area to analyze the effects. Prior to this new legislation, numerous forecasting studies had been conducted predicting not only a nationwide shortage of qualified pilots, but worldwide as well.

Lovelace and Higgins (2010) reported at the FAA forecasting conference that there would be a shortage of 85,777 pilots between 2010 and 2025. This study utilized regression analysis, historical data for pilot supply, and FAA forecast data for industry demand. A discussion at the Next Generation of Aviation Professionals Symposium in March of 2010 (ICAO, 2010) revealed an expected global pilot shortage of 200,000 pilots by 2018. Especially in light of the worldwide economic downturn experienced in recent years, these numbers are impressive.

Smith, Bjerke, NewMyer, Niemczyk, and Hamilton (2010) found that approximately 73% of new hire airline pilots had a Certified Flight Instructor (CFI) certificate at the time of initial employment. While the study did not focus on duration or type of instruction, it is clear that a large portion of pilots who enter an airline career obtain some form of their experience as a flight instructor. The study also found that new airline pilots who had a CFI certificate had a higher completion rate for initial training, and required fewer extra training events when compared with pilots who did not have a CFI certificate.

Both the success and large number of CFIs at regional airlines indicate an important need for flight instructing to remain a viable career path for those aspiring to fly for a Part 121 air carrier. Feldt and Woelfel (2009) studied 179 undergraduate students to provide data regarding decisions to pursue careers based on anticipated career outcomes. This study confirmed previous research on career interest and social cognitive theory. It found agreement in four areas of career outcome expectations, including job satisfaction, job security, interesting work, and managing home and family life. The research also found that high income was one of the least important outcomes associated with potential career interest.

Research Questions

As a means to expand the knowledge on the current research being conducted on the implications of the newly adopted legislation, this study answered the following research questions:

1. How does the nature of flight time acquired as a flight instructor relate to the aeronautical experience requirements of the Airline Transport Pilot certificate?
2. What are the career aspirations of current flight instructors? Have these aspirations changed over time?

METHODOLOGY

Participants

During the fall of 2009 a survey was administered to a cadre of Certified Flight Instructors (CFI) currently employed in a large 14 CFR Part 141 collegiate aviation flight program. A total of 173 CFIs completed the survey. Nine (5%) CFIs already held an Airline Transport Pilot (ATP) certificate, thus their records were not used for further analysis. The subjects were chosen based upon their employment in the collegiate aviation flight program. Both full-time and part-time CFIs completed the survey.

Materials

The survey was constructed by a committee of individuals who had a diverse set of subject matter expertise, including those with domain relevant experience and those with survey building experience and training. The resultant survey can be broken down in three sections. One section recorded background information including the following: age, year obtained initial CFI, pilot certificate and previous flight experience. The second section recorded current aeronautical experience (flight time) in the following categories: total time, cross-country time, instrument time and night time. The last section documented

the career aspirations of the subject. The survey was approved by the institution's review board since it involved the questioning of human subjects.

Procedures

The researchers administered the paper survey at a flight operations meeting which all of the employed CFIs were required to attend. The CFIs were asked to bring their updated pilot logbooks to the meeting in order to answer the aeronautical experience questions accurately. Although the survey was administered at a mandatory meeting, participation was strictly voluntary. No identifying information was collected on the survey tool. Once the survey was administered the researchers inputted the results into SPSS data mining and statistical analysis software for further analysis.

RESULTS

The sample for this study consisted of certified flight instructors employed in a collegiate aviation 14 CFR Part 141 flight program. In total 173 completed surveys were obtained from the instructor group. Background information about the sample is presented in Table 2. It should be noted that all respondents that held an ATP certificate obtained their CFI certificate prior to 2004 and had a combination of flight experience besides just acting as a flight instructor.

Table 2. *Background Information*

Characteristics	*n*	%
Pilot Certificate		
Commercial	164	94.8
Airline Transport Pilot	9	5.2
Year obtained CFI		
Prior to 2004	15	8.9
2005	8	4.8
2006	23	13.7
2007	36	21.4
2008	64	38.1
2009	22	13.1
Flight Experience		
Only Flight Instruction	146	84.4
Combination (CFI, 121, Cargo)	27	15.6

Note. $n = 173$

Aeronautical Experience Analysis

As a basis for measuring aeronautical experience as it relates to the ATP certification requirements, the flight instructor respondents were asked to provide flight time data. Table 3 lists the overall means of various flight time categories that are required for the ATP certificate. The following analysis omits the flight times reported by the respondents which already hold an ATP certificate.

Table 3. *Aeronautical Experience*

Aeronautical Experience	Mean	Standard Deviation
Total Flight Time	862.8	491.3
Total Cross-Country Time	218.1	163.9
Total Instrument Time	86.7	64.0
Total Night Time	110.4	76.9

Note. $n = 161$

The respondents were also asked to report the flight time acquired in the last 12 months. The instructors indicating that they worked as a flight instructor full-time for the last 12 months acquired a mean total time of 446.2 hours ($n = 82$), and mean total cross-country time of 110.5 ($n = 82$).

In order to compare the aeronautical experience acquired by flight instructing to the ATP requirements, percentages were calculated comparing the flight time received in various categories to total time obtained by the respondent. Table 4 states the comparison of these percentages. The sampling of flight instructors in this group exceeds the percentage required for both night and instrument flying, however significantly lacks the percentage of cross country time required by the ATP certificate.

Nearly 12% ($n = 17$) of the flight instructors responding to this survey indicated that they had received aeronautical experience outside of flight instructing. Thus a *t*-test was performed to analyze the difference between cross-country percentages of those solely acting as flight instructors and those gaining aeronautical experience in a variety of means (previous airline experience, cargo flying, charter flying, etc.). A significant difference was found indicating that those pilots who obtained experience outside of flight instructing acquired higher cross-country percentages than those who worked only as flight instructors ($t\,[159] = -2.907$, $p = 0.004$).

Table 4. *Aeronautical Experience Percentages compared to ATP Requirements*

Aeronautical Experience Percentages of Total Time	CFI Sample	ATP Requirements
Cross-Country	24.7%	33%
Instrument	11.5%	7%
Night	13.0%	5%

Career Aspiration Analysis

The second aspect of this research study aimed to discover the current career aspirations of flight instructors and see if these aspirations had changed over time. In order to gather data on this topic a series of questions were asked. The first question asked "What were your career aspirations when you began your flight training?" The second question asked "Have your career aspirations changed?" Lastly, it was asked "If your career aspirations changed, what is your current career aspiration?" The frequency and percentage results of the first and last question are depicted on Table 5.

Table 5. *Career Aspirations, Original versus Current*

Career	Original N	Original %	Current N	Current %
Airline Pilot	97	56%	41	24%
Corporate Pilot	28	16%	29	17%
Military Pilot	5	3%	7	4%
Professional CFI	1	1%	4	2%
Other	8	5%	55	32%
Combination	22	13%	23	13%
Missing Data	13	8%	15	9%

Note. $N = 174$

A Chi-Square test of significance compared those indicating a change in career aspirations between those initially indicating an airline career to all other careers ($\chi^2 [1, n = 161] = 6.985, p = 0.008$). In Table 6, the results show that flight instructors initially aspiring to be airline pilots changed their career aspirations more than those who originally aspired to enter into other pilot professions.

Table 6. *Chi-Square Comparison between Original Career Aspirations and Change that Occurred*

Original Career Aspirations		Change (Yes)	Change (No)
Airline Pilot	Observed/Expected	60/51.8	37/45.2
	χ^2 Contribution	37%	23%
Other (Corporate, Military, CFI)	Observed/Expected	26/34.2	38/29.8
	χ^2 Contribution	16%	24%

DISCUSSION AND CONCLUSION

This study aimed to answer two distinctive research questions in regards to how the recent passing of Public Law 111-216 could ultimately impact the typical career progression of aspiring airline pilots, which often includes gaining aeronautical experience as a flight instructor. The first question focused on the aeronautical experience requirements of the ATP certificate, and how time acquired as a flight instructor would serve to meet the hourly requirements.

The results of this research indicate that flight instructors are at a disadvantage when it comes to gaining the required aeronautical experience required for the FAA ATP certificate, namely in the category of cross-country time. In order to better illustrate this disadvantage, take for example a newly hired flight instructor and assume that he/she is beginning this step in his/her career with the minimum hours that a commercial pilot would have to obtain (250 hours of total flight time, 50 hours of cross-country time). The research results indicated that a full-time flight instructor in this particular Part 141 collegiate aviation program obtained on average 446 total flight hours per year, of these 110 were also classified as cross-country time. It would take this individual approximately 2.8 years to obtain the needed flight hours to meet the FAA ATP requirement of 1,500 hours of total time. However, it would take this same individual an additional 1.3 years, or a total of 4.1 years to meet the 500 hours of cross-country currently required for the FAA ATP certificate. This would not be the case in meeting the ICAO ATP requirement

of only 200 hours of cross-country time. The ICAO ATP cross-country time could be met in only 1.4 years.

To better understand the make-up of flight time requirements in the flight training environment, an analysis was conducted utilizing the training course requirements specified by the Part 141 approved curriculum. Table 7 includes total dual (instructional) flight time, dual cross-country flight time, and solo cross-country flight time.

Table 7. *Training Course Requirements of Part 141 College Curriculum*

	Private	Commercial	CFI	CFII	Total
Total Dual Instruction	27	68	25	15	135
Dual Cross-Country	3	16	0	0	19
Solo Cross-Country	3	14	0	0	17

The 19 hours of minimum dual cross-country flight time represents 14% of the 135 hours of total dual a CFI would expect for a single student through the entire collegiate curriculum. This is a reflection of minimum hours, and does not factor in repeat cross-country lessons, or conducting cross-country flight that exceed the minimum time requirement. Although the percentage of cross-country time per total dual instruction time is nearly 20% less than needed by the FAA ATP criteria, it would be sufficient in obtaining the ICAO ATPL cross-country requirement.

Under the direction of H.R. 5900 (2010), the FAA administrator has already been tasked with looking into the FAA ATP requirements. Section 217 of H.R. 5900 (2010) states:

> (a) Rulemaking Proceeding- The Administrator of the Federal Aviation Administration shall conduct a rulemaking proceeding to amend part 61 of title 14, Code of Federal Regulations, to modify requirements for the issuance of an airline transport pilot certificate. (pg. 20)

It is strongly recommended that the administrator, along with the rule making committee, seriously analyzes the current requirement of 500 hours of cross-country time for the ATP certificate, along with the current definition of cross-country time for aeronautical experience prescribed for the ATP requirement. Neither the hourly requirement nor the definition is currently in line with the ICAO requirement or definition for cross-country requirements. By reducing the cross-country aeronautical experience requirement for the ATP, flight instructors could more readily meet the ATP aeronautical experience requirements.

Due to the current make up of aeronautical experience required for the FAA ATP, flight instruction does not prove to be the most efficient means by which to gain the needed flight time in relation to cross-country experience. The results of this study indicated a significant difference between pilots who have obtained their flight time by solely flight instructing, versus those who have obtained flight time by a variety of means versus their cross-country percentage in relation to total time. The impact of requiring all Part 121 airline pilots to hold an ATP certificate may negatively affect the decision of well qualified pilots seeking employment as a flight instructor. If it is realized that it is more difficult to obtain the aeronautical experience requirement of 500 hours of cross-country time as a flight instructor, many of these qualified individuals may opt to find employment in other flight related careers. This could leave a shortage of qualified flight instructors to teach the future generation of pilots.

In order to gain the aeronautical experience required for the FAA ATP, flight instructors and flight programs alike may opt to re-examine how they structure their current flight courses. Many may try to place more required dual cross-country lessons into the curriculum. While this may have a positive impact on student learning, it is bound to have a negative impact on the financial burden placed on flight students. Future research needs to be accomplished to analyze the unintended impact that this legislation may have on the cost of flight training for all pilots.

The second part of this research aimed to analyze how the long-term career aspirations of a current set of flight instructors could be impacted by the passing of Public Law 111-216. It is evident that the career aspiration of becoming a Part 121 airline pilot is diminishing. Over half of the sample surveyed indicated that they originally aspired to be airline pilots, while currently less than a quarter still hope to pursue that route. This could have significant ramifications for the airline industry as a whole, especially with an impending pilot shortage on the horizon. More research needs to be conducted in order to assess exactly why this change in career aspirations is occurring in this population of flight instructors.

This research study was accomplished at a Part 141 collegiate flight training program. Additional research needs to be conducted with other groups of flight instructors, especially those providing flight training in a Part 61 environment to see if the same results are found. This study should also be replicated at other Part 141 flight schools in order to verify the results.

As the FAA moves forward in enacting the requirements spelled out in Public Law 111-216, it is imperative that research is conducted to help analyze and predict what impacts may occur. While all of the sections outlined in Public Law 111-216 directly affect the Part 121 carriers, many of the sections will have trickle down effects in other aspects of the aviation community. These effects need to be identified and evaluated before negative ramifications take place within the general aviation community.

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