

THE IMPACT OF PUBLIC LAW 111-216:  
PERCEPTIONS OF U.S. COLLEGIATE FLIGHT  
STUDENTS

By

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STUDENTS

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Title of Study: THE IMPACT OF PUBLIC LAW 111-216: PERCEPTIONS OF U.S. COLLEGIATE FLIGHT STUDENTS

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Abstract:

Scope and method of study: The purpose of this national research study was to examine the perceptions of U.S. collegiate flight students regarding the impact of PL 111-216 after its implementation and how PL111-216 will affect collegiate flight students and the U.S. airline industry. This study was to determine if a relationship exists between collegiate flight students' perceptions of PL 111-216 and the possible effects it may have on collegiate flight students' desires and ambitions to become U.S. commercial pilots. Additionally, this study examined collegiate flight students' perceptions regarding the impact Public Law 111-216 may have on the overall U.S. airline industry.

Findings and conclusions: The data collected from U.S. collegiate flight students at seven universities located throughout the U.S. were analyzed for the findings and conclusion in this research. Two research questions were developed to guide the study and organized into a research questionnaire emphasizing three areas: collegiate flight students' characteristics, collegiate flight students' perceptions of Public Law 111-216, and collegiate flight students' personal comments. The findings of this research study have the potential to impact collegiate flight students, collegiate flight programs, and the U.S. airline industry. This research provides collegiate flight programs and the U.S. airline industry insight into flight students' perceptions of PL 111-216. This insight may help forecast future trends in prospective enrollments and retention rates of current students in collegiate flight programs due to the significant increase of unanticipated flight costs. This study has the potential to also provide a vision of future pilot supply. The findings may provide an avenue for collegiate flight programs and the U.S. airline industry to address possible areas of concerns as a result of PL 111-216 changes in pilot qualification standards.

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## CHAPTER I

### INTRODUCTION

Since the birth of manned powered flight in 1903, aviation related fatalities and crashes are not new throughout the United States. It is reported that the first national aviation casualty occurred just five short years after the Wright brothers made their historical powered flight in Kittyhawk (The Wright Brothers First Flight 1903, 2003 para. 2). Unfortunately, with the progression of aviation and the evolution of the jet age, death has become an associated risk with flight. The associated risk of death with flight has since motivated aviators and legislators to improve the overall safety of the national aviation infrastructure.

In today's society, aviation safety and pilot training remains a growing concern and top priority to the flying American public. After the highly publicized crash of Colgan Flight 3407, also referred to as codeshare Continental Flight 3407, U.S. legislators questioned adequate pilot training qualifications and overall aviation safety in the nation. As an outcome of the deadly 2009 crash and a combination of efforts to decrease the associated risks with flight, the Colgan Flight 3407 tragedy triggered a massive overhaul of airline safety and pilot qualification. This overhaul was particularly impactful to U.S. collegiate flight students by changing pilot qualification standards.

Colgan Flight 3407 crashed a distance of five miles from its intended destination airport in Buffalo, New York. The aircraft, a Bombardier Dash-8 Q400, was approaching the destination airport when its speed became too slow and the aircraft stick shaker automatically pushed forward to keep the aircraft from stalling. The captain immediately had the wrong reaction and pulled back on the stick, which caused the aircraft to go into a full aerodynamic stall. Unfortunately, due to pilot error, once the aircraft stalled, the aircraft was never recovered by the captain or first officer and crashed into a New York neighborhood. The two pilots, two flight attendants, and 45 passengers aboard the airplane were killed in the crash. Additionally, one person on the ground was killed and the airplane destroyed on impact by destructive forces and post-crash fire (National Transportation Safety Board, 2010 p. 1).

The crash of Colgan Flight 3407 brought immediate attention to the U.S. airline industry, primarily regarding safety concerns. Garrison (2010) explains that Colgan Flight 3407 crash received an unusual amount of media scrutiny; partly, because of what the National Transportation Safety Board's (NTSB) report revealed about the captain and the first officer. The NTSB revealed the flight failed due to the captain's cockpit errors, and also commented on the unique lifestyle of the first officer. Garrison (2010) remarked about the first officer's lifestyle, living in Seattle and traveling a long commute across the country for work; while existing on a salary of a little more than \$15,000 a year. Information about the captain and first officer of Colgan Flight 3407 also brought scrutiny to the U.S. airline industry regarding the following aviation safety concerns: fatigue due to long pilot commutes, inadequate training in the cockpit, and insufficient government oversight. Colgan Flight 3407 is a fundamental prompt of the massive overhaul of airline safety and pilot

qualification that now affects the entire U.S. airline industry including U.S. collegiate flight students.

After the 2009 fatal crash, family members of the victims of Colgan flight 3407 came together creating unity out of tragedy. The victim's family members formed the group called, Families of Continental Flight 3407. This group operates and maintains a website (3407memorial.com) that shares stories from loved ones, pictures, slideshows, recent news, along with other things pertinent to Colgan Flight 3407. Victim's family members, with support from the U.S. Congress, believed that Colgan Flight 3407 and previous U.S. regional airline crashes could have been avoided with improved aviation safety; emphasizing increased pilot qualification standards.

Extensive national media coverage combined with victim's family members uniting, resulted in political pressure being applied to Congressional representatives. The push was for improved airline safety legislation; predominantly by increasing minimum pilot flight hours and requiring Air Transport Pilot (ATP) certification for first officers. It took family members approximately fifteen months, twenty congressional hearings, and more than forty personal visits to Washington, DC, before President Barack Obama signed Public Law 111-216 (PL 111-216) into law on August 2010 (Families of Continental Flight 3407, 2013). Public Law 111-216 (PL 111-216) is also known as The Airline Safety and Federal Aviation Administration Extension Act of 2010. Overall, PL 111-216 outlines numerous requirements in an attempt to improve the safety of the American flying public (Families of Continental Flight 3407, 2013).

## Statement of the Problem

In 2010, President Obama signed the Airline Safety and Federal Aviation Administration Extension Act of 2010. Commonly referred to as Public Law 111-216 or PL 111-216, this is one of the most comprehensive aviation safety regulations on record. This law was created and designed to improve the overall safety of the U.S. aviation industry. Christensen (2013) indicates that as part of the Airline Safety and Federal Aviation Administration Extension Act of 2010, the United States Congress called for sweeping changes to the current requirements on commercial air carrier operations.

The passing of PL 111-216 has direct influence on collegiate flight students pursuing degrees in flight who desire to work for a U.S. Part 121 commercial carrier. PL 111-216 entails numerous requirements for improving the safety of the U.S. commercial airline carriers. Specifically, PL 111-216 consists of 24 designated sections; however, this research study will only focus on Sections 216 and 217 as they have the greatest potential to directly affect U.S. collegiate flight programs, collegiate flight students, and the U.S. commercial airline industry.

Section 216, Flight Crewmember Screening and Qualifications, requires the Federal Aviation Administration (FAA) to conduct rulemaking to require Part 121 air carriers to develop and implement means and methods for ensuring that U.S. commercial pilots have proper qualifications and experience. Minimum requirements ensure that potential pilots undergo an inclusive pre-employment screening process, including an assessment of the abilities, aptitudes, airmanship, and suitability of each pilot applicant in terms of operating effectively in the air carrier's working environment. All pilots are required, three years after

the date of the enactment of PL 111-216, to obtain an Airline Transport Pilot (ATP) certificate under Part 61 of Title 14, Code of Federal Regulations, and have appropriate multi-engine aircraft flight experience, as determined by the FAA (111th Congress, 2010, pp. 19-20).

Section 217, Air Transport Pilot Certification, requires the FAA to conduct rulemaking that modifies the requirements to earn an Airline Transport Pilot (ATP) certificate. The primary focus of Section 217 concerns flight hours including operations in difficult flight conditions. Regarding the minimum requirements to earn an ATP certificate, pilots must have adequate flight hours, as determined by the FAA, to permit pilots to function effectively in an air carrier operational environment. All ATP certificated pilots must also have received flight training; academic training, or operational experience that will prepare a pilot, at a minimum, to: (1) function effectively in a multi pilot environment, (2) function effectively in adverse weather conditions, including icing conditions, (3) function effectively during high altitude operations, and (4) function effectively in an air carrier operational environment (111<sup>th</sup> Congress, 2010 pp. 19-21). Section 217 requires total number of flight hours to be at least 1,500 hours with the exception of Section 217 (d), Credit Toward Flight Hours (111th Congress, 2010, pp. 20-21). The FAA may allow specific academic training courses, beyond those required under subsection (b) (2), to be credited toward the total flight hours required under subsection (c)(111th Congress, 2010, p. 21). The FAA may allow such credit based on a determination allowing a pilot to take specific academic training courses will enhance safety more than requiring the pilot to fully comply with the flight hour's requirement (111th Congress, 2010, pp. 20-21).

Specifically, Section 216 changes the qualification requirements for all Part 121 pilots; requiring every Part 121 pilot to hold an Airline Transport Pilot (ATP) certificate. This new requirement is mandatory and expected to be implemented within three years after PL 111-216 was signed into law in 2010, thus becoming effective August 2, 2013.

Prior to Public 111-216 section 216, Part 121 commercial pilots could possess a commercial pilot license with multi-engine and questionnaire ratings with significantly fewer flight hours and still be qualified as a first officer for Part 121 air carriers. Prior to enforcement of PL 111-216, collegiate flight students could earn as few as 500 total flight hours before gaining employment with a Part 121 air carrier. Also prior to PL 111-216, pilots operating as first officers, under Part 121 carriers, were not required to have earned an ATP certificate. Therefore, as a result of PL 111-216, all first officers are now required to earn considerable more flight hours and an ATP certificate for employment with a U.S. air carrier. These additional flight hours represent a significant financial expense not previously experienced by collegiate flight students.

Section 217, of PL 111-216, states that an ATP certificate requires a minimum of 1,500 hours of total flight time. However, an exception to these 1,500 hours now exists for collegiate flight students. Students can now earn a restricted-ATP (R-ATP) certificate with only 1,000 hours of total flight time. PL 111-216 still requires the collegiate flight student to accumulate several hundred additional flight hours beyond current academic requirements before he/she can sit in the right seat (first officer) of a U.S. air carrier.

Overall, the impact of these two sections 216 and 217 of PL 111-216 on collegiate flight programs in the U.S. may include: (1) an increase in student flight costs, (2) a decrease in student enrollment and/or student retention issues in collegiate flight programs, (3) a

decrease in post-graduate job placements such as first officers, and (4) the increased risk of financial viability of U.S. collegiate flight programs.

### Purpose of the Study

The purpose of this national research study was to focus on the potential impact that the implementation of PL 111-216 could have on collegiate flight students after its implementation. By exploring the influence this new legislation has had on collegiate flight students' perceptions, this study sought to determine if a relationship existed between collegiate students' perceptions of PL 111-216 and the possible effects it may have on collegiate flight students' desires and ambitions to become a U.S. commercial pilot. Additionally, this study examined collegiate flight students' perceptions regarding the impact Public Law 111-216 may have on the overall U.S. commercial airline industry.

Thousands of U.S. commercial pilots will be retiring at the same time the FAA is introducing the new rule of requiring additional flight training and flight hours to meet ATP certification qualifications. This combination of events may affect the overall pilot supply in the U.S. commercial aviation industry. "The FAA Aerospace Forecast FY 2012-2032 indicates that overall domestic revenue passenger enplanements are expected to grow an average of 2.2 percent per year from 2011 to 2032" (FAA Aerospace Forecast, 2012, p. 1). An increase of passenger enplanements translates to more passengers flying within the U.S. airline industry, driving the necessity for more U.S. commercial pilots. Sufficient pilot supply of newly-trained U.S. commercial pilots graduating from collegiate flight programs will be critical to meet this projected domestic passenger growth in the U.S.

Today, collegiate flight training costs, including college tuition and fees, can exceed \$100,000 for flight students earning a Bachelor of Science degree from a four-year collegiate



flight program (Future & Active Pilot Advisors, 2015). Typically, collegiate flight students pay for their flight training costs in various ways: financial aid, student and/or private loans and grants, academic scholarships, and personal family finances. According to Bachman (2014) and the Air Line Pilots Association (ALPA), the largest U.S. pilot union, the initial salary for a first officer employed at a Part 121 U.S. commercial airline is a little more than \$21,000 per year. The additional flight hours and associated financial costs to meet the minimum requirements for a R-ATP certificate, as stated in PL 111-216, could possibly impact collegiate flight students' decisions to pursue a career as a U.S. commercial pilot.

Currently, the mandatory retirement age for a Part 121 U.S. commercial airline pilot is 65 years old. This changed in 2007 when President George W. Bush increased the mandatory retirement age for Part 121 U.S. commercial airline pilots from age 60 to age 65 (110<sup>th</sup> Congress, 2007-2008). Pilots who qualified for the five-year retirement extension in 2007 are now beginning to retire at an alarming rate; creating a critical need for newly-qualified pilots to fill the retirement gap in the U.S. commercial aviation industry.

Furthermore, PL 111-216 could create a hiring gap between retiring pilots and newly-hired pilots. This gap could be created by the new specified flight training requirements for employment eligibility in the U.S. commercial aviation industry, potentially contributing to an overall pilot shortage.

### Research Questions

To achieve the purpose of this study, the following two research questions were addressed by researching collegiate flight students and their perceptions of Public Law 111-216:

1. How will Public Law 111-216 affect collegiate flight students?

2. How will Public Law 111-216 affect the U.S. airline industry?

Significance of the Study

This research study is significant to collegiate aviation, as well as the U.S. commercial aviation industry. It provides insight to collegiate flight students' perceptions regarding PL 111-216 and the effects it could have on the collegiate flight student, the collegiate flight environment, and the U.S. airline industry.

The findings of this research study have the potential to impact participating collegiate flight students regarding PL 111-216 and the affects it may have on their career aspirations in the U.S. commercial aviation industry. The study will also benefit the collegiate flight programs by providing insight to flight students' perceptions of PL 111-216. This insight may help forecast the future trends in prospective enrollments and retention rates of current students due to the significant increase of unanticipated flight costs. The findings will provide an avenue for collegiate flight programs to address possible areas of student enrollment concerns and the underlying operational financial constraints caused by this change and increase in pilot qualification standards.

Finally, the information obtained by this research may also be useful in facilitating further discussion and implementing change within the U.S. aviation industry. As a result of this study's findings, industry decision makers may become more knowledgeable of the issues and concerns facing collegiate flight students and their collegiate flight programs. If eligible future professional pilots decrease from collegiate flight programs, the result could be a potential decline in U.S. pilot candidate numbers for the entire U.S. commercial airline industry.

## Limitations and Assumptions of the Study

Although this was a national research study, the findings were limited to collegiate flight students currently enrolled in a four-year public or private university offering comprehensive aviation curriculums, awarding a bachelor degree in professional pilot/ flight professional; and holding institutional membership in the University Aviation Association. This research study did not include flight students receiving training from two-year public or private educational institutions, as well as non-collegiate flight programs or military flight training programs. The researcher assumed that aviation faculty or collegiate flight center managers would only administer the research questionnaire to students who identified themselves as undergraduate collegiate flight students currently enrolled as professional pilot/flight professional majors earning a Bachelor of Science degree. The researcher assumed the participating collegiate flight students would answer the research questionnaire honestly without any influence, actual or perceived; and would answer all questions to the best of their knowledge.

## Definitions of the Terms

This section provides a definition of terms that are used throughout this research study:

Airline Safety and Federal Aviation Administration Extension Act of 2010 - to amend the Internal Revenue Code of 1986 to extend the funding and expenditure authority of the Airport and Airway Trust Fund, to amend title 49, United States Code, to extend airport improvement program project grant authority and to improve airline safety, and for other purposes.

Airline Transport Pilot (ATP) - an individual who is certificated or licensed to be the pilot in command for an airline, charter operator, or corporate flight department by the Federal Aviation Administration (FAA). ATP licenses are usually required for insurance reasons for those responsible for the safety and well-being of those aboard the aircraft. First Officers that fly under 14 CFR 121 are required to hold an Airline Transport Pilot Certificate as of August 1, 2013.

Airline Transport Pilot Certificate - the basic requirements for certificate holders are the certificate holders must be at least 23 years of age, be able to speak, read, and understand the English language, requires 1500 hours of flight time, pass a knowledge test as well a practical test.

Codeshare - an arrangement between two airlines in the aviation industry where the two airlines share the same flight. In this study Continental Flight 3407 and Colgan Flight 3407 are synonymous.

Collegiate Flight Program - aviation flight programs located within public and private institutions offering comprehensive aviation curricula, and awarding degrees in aviation disciplines such as professional pilot/and or flight professional.

Commercial Aviation - the operation of aircraft, for financial gain, by transporting goods or passengers for payment.

Commercial Pilot - individuals operating aircraft for financial gain by transporting goods or passengers for a fee.

Enplanements - passengers that board a commercial aircraft.

Federal Aviation Administration (FAA) - governmental division within the Department of Transportation that is responsible for the regulation and implementation of safety for the civil and commercial aviation industry.

Federal Aviation Regulation (FAR) - rules authored by the Federal Aviation Administration that govern all aviation activities that take place within the United States.

First Officer (FO) - member of the flight crew who is subordinate to the captain that can be used, interchangeably, with second in command or co-pilot.

House Resolution 5900 (H.R. 5900) - the precursor to the Airline Safety and Federal Aviation Administration Extension Act of 2010.

Notice of Proposed Rulemaking (NPRM) - a public notice issued by law when one of the independent agencies of the United States government wishes to add, remove, or change a rule or regulation as part of the rulemaking process.

The National Transportation Safety Board (NTSB) - an independent organization of the U.S. federal government responsible for civil transportation accident investigation.

Part 121- Code of Federal Regulations specifically defining U.S. air carrier operations or scheduled airline operations in the United States.

Public Law 111-216 - originally titled as H.R. 5900, the Airline Safety and Federal Aviation Administration Extension Act of 2010 signed into law by President Obama on August 1, 2010.

Restricted ATP (R-ATP) - the FAA authorizes institutions of higher education to certify graduates of specific aviation degree programs for a restricted privileges ATP certificate with reduced aeronautical experience. This authority is distinct from the ATP, and allows for pilots with fewer than 1,500 hours of flight time to obtain a restricted privileges ATP certificate. A R-ATP certificate allows a pilot to serve as a co-pilot until he or she obtains the necessary 1,500 hours.

Stick Shaker - the stick shaker is a component of an aircraft's stall protection system. The stick shaker is a mechanical device to rapidly and noisily vibrate the control yoke, called the stick, of an aircraft to warn the pilot of an imminent stall.

University Aviation Association (UAA) - a professional academic national organization identified as the voice of collegiate aviation to its members, the industry, government and the general public.

## CHAPTER II

### REVIEW OF RELATED LITERATURE

Chapter II will explore the literature relevant to understanding the development of, and interpreting the results of this study. This chapter provides a review of the literature and research related to Public Law 111-216, including the Airline Safety and Federal Aviation Administration Extension Act of 2010, U.S. regional airline crashes and fatalities that contributed to Public Law 111-216, Colgan Flight 3407 and the families of the victims, U.S. pilot shortage, U.S. pilot supply, and collegiate flight programs.

#### Airline Safety and Federal Aviation Administration Extension Act of 2010

The Airline Safety and Federal Aviation Extension Act of 2010 commonly cited as Public Law 111-216 ratified inclusive changes to the current requirements to Part 121 commercial air carriers in the United States. The Airline Safety and Federal Aviation Administration Extension Act of 2010 was signed in to law by President Barack Obama as Public Law 111-216 with the short title, The Airline Safety and Federal Aviation Administration Extension Act of 2010.

This study focuses on two sections of The Airline Safety and Federal Aviation Administration Extension Act of 2010, sections 216 and 217. Section 216 states that

all flight crew members must obtain an Air Transport Pilot (ATP) certificate under Part 61 of Title 14, Code of Federal Regulations, and have appropriate multi-engine aircraft experience, as determined by the FAA (Federal Aviation Administration, 2013, pp. 21-22). The requirements proposed many changes to the Airport and Airway Extension, but even more to Airline Safety and Pilot Training Improvement. As part of the rule making change, Public Law 111-216 specifically requires all crew members to obtain an Air Transport Pilot (ATP) certificate which will significantly impact the collegiate flight student.

Section 217 of the Extension Act of 2010 States:

“(b) MINIMUM REQUIREMENTS - To be qualified to receive an airline transport pilot certificate pursuant to subsection (a), an individual shall -

- (1) Have sufficient flight hours, as determined by the Administrator, to enable a pilot to function effectively in an air carrier operational environment; and
- (2) Have received flight training, academic training, or operational experience that will prepare a pilot, at a minimum, to—
  - (A) Function effectively in a multi-pilot environment;
  - (B) Function effectively in adverse weather conditions, including icing conditions;
  - (C) Function effectively during high altitude operations;
  - (D) Adhere to the highest professional standards; and
  - (E) Function effectively in an air carrier operational environment.



(c) FLIGHT HOURS -

(1) Numbers of flight hours. The total flight hours required by the Administrator under subsection (b)(1) shall be at least 1,500 flight hours.

(2) Flight hours in difficult operational conditions - The total flight hours required by the Administrator under subsection (b)(1) shall include sufficient flight hours, as determined by the Administrator, in difficult operational conditions that may be encountered by an air carrier to enable a pilot to operate safely in such conditions.

(d) CREDIT TOWARD FLIGHT HOURS - The Administrator may allow specific academic training courses, beyond those required under subsection (b)(2), to be credited toward the total flight hours required under subsection (c). The Administrator may allow such credit based on a determination by the Administrator that allowing a pilot to take specific academic training courses will enhance safety more than requiring the pilot to fully comply with the flight hour requirement” (Federal Aviation Administration, 2013, pp. 22-23).

Previously before PL 111-216, a commercial pilot certificate was the only required certificate needed for operating as a first officer in an air carrier operation (Maxon, 2013). Eligibility for a commercial pilot certificate is that the holder must be 18 years old and have at least 190 flight hours if obtained under 14 CFR Part 141 along with other tasks (Maxon, 2013) . As part of the new legislation, the first officer must now have

an Air Transport Pilot (ATP) certificate. The pilot in command or captain has always been required to have an ATP for an air carrier operation (Federal Aviation Administration, 2013).

As part of the new law, the first officer must now hold an ATP certificate. Eligibility for an Air Transport Pilot (ATP) certificate increases age and flight hour requirements from the commercial pilot certificate. To be an Air Transport Pilot certificate holder, an individual must be 23 years old and have at least 1,500 flight hours (Federal Aviation Administration, 2013). These new flight requirements increase the additional time and cost for the collegiate flight graduate seeking employment with an U.S. air carrier upon graduation.

#### U.S. Regional Airline Crashes Contributing to the Passage of Public Law 111-216

The primary purpose of the Airline Safety and Federal Aviation Administration Extension Act of 2010 is improvement of safety and increasing pilot standard requirements. Colgan Flight 3407, as well as other recent U.S. regional airline crashes and fatalities contributed to the review and revision of safety and pilot requirements with the passage of Public Law 111-216. Along with Colgan Flight 3407, the following commercial airline fatal crashes contributed to the passage of Public Law 111-216: U.S. Airways Express Flight 5481, Corporate Airlines Flight 5966, and Delta Connection Comair 5191.

After departure from Charlotte, North Carolina, on January 8, 2003, U.S. Airways Express Flight 5481 crashed shortly after takeoff. All 19 of its passengers, including two crew members were killed in the crash. The cause of the crash, as determined by the

NTSB, was that the plane's elevator controls were improperly rigged causing the plane to lose control during takeoff (National Transportation Safety Board, 2004, para. 1).

Flying on a regularly scheduled route from St. Louis, Missouri to Kirksville, Missouri, the Corporate Airlines Flight 5966 crashed in the woods during its descent, on October 19, 2004, killing all but two of the fifteen passengers on board. The cause of the accident, as discovered by federal investigators, was pilot error (National Transportation Safety Board, 2006, para. 1). Two years later, on August 27, 2006, Delta Connection Comair Flight 5191 crashed on takeoff from Lexington, Kentucky killing all but one person aboard. (National Transportation Safety Board, 2007, para. 1).

Although other U.S. regional carriers have crashed within the last decade leading up to PL 111-216, Colgan Flight 3407 has played the most critical role in the reconstruction of safety and pilot requirements. The crash of Colgan Flight 3407 brought immediate attention to the U.S. airline industry regarding the following aviation safety issues: fatigue due to long pilot commutes, inadequate training in the cockpit, and insufficient government oversight. As a result of Colgan Flight 3407 the U.S. airline industry has seen a massive overhaul in safety concerns.

#### Colgan Flight 3407

Colgan Flight 3407 departed Newark, New Jersey on February 12, 2009 with the intentions of arriving safely in Buffalo, New York. Unfortunately, due to pilot error, all passengers and flight crew on board were killed as well as one person on the ground at the location of the crash. To understand the complexity of the crash it is important to interpret all aspects involving the accident. The home base operation for both the captain and the first officer was Liberty International Airport (EWR) located in Newark, New

Jersey (National Transportation Safety Board, 2009). The previous day, February 11, 2009, the captain of Colgan Flight 3407 had completed a two-day trip arriving at EWR at approximately 4 p.m. Also on that day, the first officer commuted from her home near Seattle, Washington to EWR on a late evening flight. The first officer arrived at EWR in New Jersey the morning of the accident after traveling from Memphis International in Tennessee (National Transportation Safety Board, 2009, p. 1).

The flight crew's first two scheduled flights had been cancelled because of high winds at EWR resulting in ground delays at the airport. The airplane used for Colgan Flight 3407, a Bombardier Dash-8 Q400, arrived at ERW at 7 p.m. At 9:18 p.m., the air traffic control tower cleared Colgan Flight 3407 for takeoff (National Transportation Safety Board, 2009, p. 1).

The Colgan Flight 3407 crashed five miles from its destination airport in Buffalo, New York. The aircraft was on an instrument approach when its speed became too slow and the aircraft stick shaker automatically pushed forward to keep the aircraft from stalling. The captain immediately reacted by manually pulling back on the stick, which caused the aircraft to go into a full stall. Unfortunately, due to pilot error, once the aircraft stalled, the aircraft was never recovered by either pilot and the aircraft crashed into a New York neighborhood (National Transportation Safety Board, 2009, executive summary section, para. 2).

The captain, who was 47, held an ATP certificate and a first-class medical certificate from the Federal Aviation Administration, and received his type rating in the Bombardier Dash-8 Q400 in November 2008. Colgan Air Inc. flight records indicated that the captain had accumulated well over 3,000 hours of total flying time, including

3,051 hours in turbine airplanes and over 1,000 hours as a pilot-in-command (PIC) (National Transportation Safety Board, 2009, p. 7). The first officer, who was 24, held a commercial pilot certificate and a FAA first-class medical certificate. Colgan's flight records indicated that the first officer had accumulated over 2,000 hours of total flying time, including 774 hours in turbine airplanes including the aircraft type involved in the crash, a Bombardier Dash-8 Q400 (National Transportation Safety Board, 2009, p. 11).

Sumwalt (2010) reports the fatal accident took place on February 12, 2009 at 10:17 p.m. EST under Colgan Air, Inc. operated as Continental Connection. The aircraft a Bombardier Dash-8 Q400 was on approach to Buffalo, New York that resulted in 50 fatalities - 2 pilots, 2 flight attendants, 45 passengers, and 1 resident (National Transportation Safety Board, 2010, background section).

The National Transportation Safety Board determined that the probable cause of the Colgan Flight 3407 fatal accident was the captain's inappropriate response to the aircraft's stick shaker. According to the National Transportation Safety Board, the pilot's incorrect reaction to the stick shaker led to an aerodynamic stall from which the airplane did not recover. Additional contributions to the accident included, the crew's failure to monitor airspeed, the crew's failure to follow sterile cockpit procedures, Colgan Air Inc.'s insufficient training regarding airspeed selection and management during approaches in icing conditions, and the captain's failure to efficiently manage the flight (National Transportation Safety Board, 2009, p. 155).

As a result of the fatal crash, the National Transportation Safety Board reported that pilot training was an issue. It was reported that the captain had a record of failed flight tests (National Transportation Safety Board, 2009). Since then, the FAA has

implemented many rule changes as a result of Colgan Flight 3407 in areas ranging from pilot fatigue to ATP Pilot certificate qualifications.

#### Families of Colgan 3407 Victims

Since the fatal crash in 2009, the victim's families have come together creating unity in tragedy. Family members of victims from Colgan Flight 3407 came together as Families of Continental Flight 3407 and now operate a website (3407memorial.com); sharing testimonies, accomplishments, news, slideshows, along with other information. Victims' families have and continue to push for additional legislation to help avoid any future crashes that are preventable in the U.S. airline industry. Since the accident, investigations led by the National Transportation Safety Board gave its original public hearing on this fatal crash in May 2009. The families of passengers on board Colgan Flight 3407 have been able to meet with several government officials to heighten awareness of issues involving aviation safety and to ask for support in improving the safety of commercial aviation across the nation (Families of Continental Flight 3407, 2013).

The formation of the group, Families of Continental Flight 3407, began a few weeks after the crash of Colgan Flight 3407, when Scott Maurer, father of victim Lorin Maurer, wrote to multiple U.S. Representatives and Senators (FRONTLINE, n.d.). He sent out over fifty emails with no initial response. After he received no response, he reached out to colleagues and to his daughter's boyfriend, Kevin Kuwik (FRONTLINE, n.d.). Kevin was a coach at Butler University at the time. Kevin's father was a former mayor in western New York. Kevin began talking to well-connected coaches in the NCAA. One knew a staffer of Sen. Byron Dorgan (D-N.D.), chair of the U.S. Senate

Aviation Subcommittee. Another had a girlfriend who was a lobbyist in Washington. His father had a connection to Sen. Charles Schumer's (D-N.Y.) office. (FRONTLINE, n.d). Weeks after the accident, Scott Maurer gained close contact with other victim's family members and they began to unite. The purpose of The Families of Continental Flight 3407 as stated under "About Us" on the group's website 3407memorial.com is:

"Immediately following the accident many of us gathered in Buffalo looking for answers and trying to come to terms with the grief of losing a loved one in such a sudden and tragic manner. As a group, we don't ever wish to see another family have to endure the pain and suffering we have endured and are therefore committed to promoting positive changes related to aviation safety. We have committed a great deal of time to learning the causes of this accident as well as other areas for improvement in the current aviation industry. Through our unyielding efforts, we have helped influence the passage of PL 111-216, the most comprehensive aviation safety legislative reform in history." (Families of Continental Flight 3407, 2013, About Us section, para. 1).

According to Landsberg (2010), the victim's families of Colgan Flight 3407 were led to believe that if the first officer had the required flight time, the accident might not have occurred. Countering this accusation, the NTSB reported that the first officer had more than the minimum amount of flight time required in the new law (National Transportation Safety Board, 2009, p. 11).

After attending numerous hearings, the group Families of Continental Flight 3407 continued their ambitions for improved aviation safety and regulations. On June 8, 2009, Mike Loftus, former commercial airline pilot, who lost his daughter on Colgan Flight

3407, was invited to testify in front of the House Aviation Subcommittee (Families of Continental Flight 3407, 2013). Mike testified his personal experience as a commercial airline pilot and his concern with the safety culture of Colgan Inc. and the commercial airline industry. As a result, Mike's testimony brought attention to the importance of safety in the U.S. commercial industry from a former U.S. commercial pilot perspective. His testimony also helped support the group, Families of Continental Flight 3407, goal of passing legislation to improve the overall safety of the U.S. airline industry.

Since the tragedy, victim's families have remained proactive while banding together for common legislative goals (Families of Continental Flight 3407, 2013). On September 30, 2009, the Families of Continental Flight 3407 reiterated their strong support for the recently introduced house provision that would require all pilots, being hired to fly for commercial airlines, to hold an ATP certificate. This is a significant upgrade to the existing standard, and challenged the house leadership to stand up to a behind-closed-doors effort to weaken the requirement (Families of Continental Flight 3407, 2013). On the fourth anniversary of Colgan Flight 3407, fifty family members met with lawmakers in Congress and with Michael Huerta, head of the FAA. Their efforts led to the approval of legislation requiring better training for pilots (Jansen, 2013). Families of Continental Flight 3407 remain active in hearing appearances and press conferences. All total, "family members have attended more than 20 Congressional hearings on aviation issues and made over 60 trips to Washington to advocate for changes to address the weaknesses that contributed to the crash of Continental Flight 3407" (Families of Continental Flight 3407, 2013 p. 1).



## U.S. Pilot Shortage

In 2014, Goglia made the connection that the combination of predicted global growth in aviation and the decrease in the numbers of trainees both civilian and military will create a looming shortage of pilots. The U.S. pilot labor supply is compelling and complex. Pilots in the U.S. airline industry are responsible for the transportation of people and goods both nationally and internationally. The phrase “pilot shortage” references the situation when the pilot quantity demand is greater than the pilot quantity supply. There are many factors that contribute to U.S. pilot shortages including industry related problems, retirements, wage disagreements, etc. The major factors in recent pilot decline are lower starting salaries and tighter government regulations.

As many U.S. pilots are reaching retirement age, the U.S. commercial airline industry is finding itself struggling to find sufficient numbers of new pilots entering the industry to replace the retirees. “Perhaps decades of furloughs, bankruptcies, pay cuts, outsourcing and other highly publicized woes have made airline careers less popular with America’s youth than they once were” (Weigel, 2014, para. 4).

Lowy (2012), depicts Boeing as one of the world's largest manufacturers of commercial jetliners, and forecasts that 69,000 new pilots will be needed in North America; mostly in the U.S. The reasons for the anticipated pilot shortages are varied and may result from a combination of things including, but not limited to, mandatory retirement age for U.S. pilots, increased flight hour requirements for ATP and R-ATP certificates, and the increase in transport demand in the U.S.

In January 2006, the FAA announced plans to increase the retirement age for commercial pilots from age 60 to age 65. On December 13, 2007, President George W.

Bush signed The Fair Treatment of Pilots Act (also called The Age 65 Law) extending the mandatory retirement from the age of 60 to 65. Over the next several years pilots reaching the mandatory retirement age of 65 will retire creating a demand for replacements. Jones (2011) states, “The need for pilot replacements will be sparked by increasing passenger demand and most significantly an exodus of senior pilots hitting the age of 65” (p. 1). Thousands of senior pilots at major U.S. carriers are hitting the mandatory retirement age of 65. This massive exodus is the result of the heavy hiring in the 1980s followed by a decrease in hiring during the following decade. According to the pilot seniority lists and the United States Department of Transportation by 2022, the top four U.S. air carriers (American, Delta, United, and Southwest) will retire a minimum of 18,000 pilots due to age restriction alone (Atkins & Associates, 2014 p.14).

Lowy (2012) brings attention to regional airlines with this statement:

“A shortage in the U.S. will likely first be felt at regional airlines, which tend to fly smaller airliners and hire less-experienced pilots than mainline carriers. A typical pilot career path is to get hired as a first officer at a regional airline, get promoted to captain and then get hired by a mainline carrier” (Lowy, 2012, para. 19).

An increase in flight hour requirements for hiring minimums has the potential for major U.S. air carriers to seek qualified pilots from smaller regional carriers. Weigel (2014) suggests that, “If larger commercial carriers hire qualified pilots from regional carriers it could leave regional carriers at a loss for qualified pilots” (para. 4). Some analysts say, that if shortages occur, large airlines would likely scoop up available candidates leaving regional carriers scrambling (Jones, 2013). Regional carriers are

responsible for operating half of the nation's air service in smaller cities. If regional carriers suffer it could result in service being terminated from smaller cities. According to the United States Department of Labor Statistics (2014) “It is likely that scheduled airlines will attempt to increase profitability over the next decade by increasing the average number of passengers in all aircraft. This will probably be done by eliminating routes with low demand and reducing the number of flights per day along more heavily used routes” (Job outlook section, para. 1). According to Garfield (2014), “small cities across the nation are already seeing their air service cut, with the prospect that all air service will cease to cities smaller than 150,000 populations” (p. 1).

Jones (2013) found that analysts say airlines, especially regional carriers, will have a challenge finding new qualified pilots. This statement is supported by the idea that the new expectation of requiring first officers to have a minimum of 1,000 and ATP certificate is the same requirement as that of captains. Simple mathematics depicts that more flight hour requirements increases time and financial cost of gaining an ATP certificate.

Additionally, the starting salaries for regional airline first officers could contribute to the anticipated U.S. pilot shortages. Becoming a regional airline pilot requires time, training, and money. CNN Money (2015), reports that “starting salaries for full-time first officer pilots at regional airline carriers average about \$22,400, according to data from the pilot union, Air Line Pilots Association (ALPA)” (p. 1). Similarly, Bachman (2014) also found that beginning salaries for regional airlines first officers start at \$22,400, according to the ALPA.

When considering the new flight hour requirements of PL 111-216 compared to the annual salary for a first officer, Rebecca Shaw, the first officer of Colgan Flight 3407 earned an annual salary barely over \$16,000 (Fox News, 2009). According to the Federal Register, a single household in the 48 Contiguous States and the District of Columbia earning an annual salary of \$11,670 is considered to be at the poverty level (Federal Register, 2014). Considering that First Officer Rebecca Shaw was earning an annual salary of \$16,200, she was only making approximately \$4,530 above poverty level for a single household. Regional pilots starting around \$10+ per hour in 2009 were close to the federal minimum wage of \$7.25 per hour (United States Department of Labor, 2009). Therefore, considering the cost of education and flight training compared to starting salaries for regional pilots; the U.S. commercial industry could see a decline in potential collegiate flight students graduating from universities and entering the U.S. commercial pilot supply.

According to the United States Federal Aviation Agency Aerospace Forecast for fiscal years 2012-2032, the FAA predicts that air traffic growth for U.S. carriers is expected to rise by more than 90 percent over the next two decades (FAA Aerospace Forecast, 2012). Naturally, an increase of air traffic growth stimulates the growth and increased need of both aircraft and pilots to fill industry projections. Indications of more U.S. air travel are predicted to increase significantly. “The International Air Transport Association (IATA) released the IATA Airline Industry Forecast 2013-2017 showing that airlines expect to see a thirty-one percent increase in passenger numbers between 2012 and 2017. By 2017 total passenger numbers are expected to rise to 3.91 billion - an increase of 930 million passengers over the 2.98 billion carried in 2012” (International

Air Transport Association, 2013, para. 1). In the U.S. specifically, the Department of Labor predicts that in one year, the aviation industry will need to hire close to 14,000 pilots because of the increase in demand for travel by air in addition to replacing the current retiring pilots (Koenig, 2009).

### U.S. Pilot Supply

Historically, the U.S. airline industry's pilot supply comes from two primary sources: collegiate flight programs and military pilots. In the past, the majority of commercial pilots came from the U.S. military. However, Berman (2012) stated that the selection pool of military pilots, that airlines have relied upon in the past, has significantly decreased. This is because more pilots are choosing to stay in the military rather than seek airline careers. Loyd (2014) explains that the military is keeping its pilots longer with wage increases and bonuses. As a result, the airlines have had to rely on new hires that have accumulated their experience at flight schools.

Duggar, Smith, and Harrison (2009) describe that until the 1990s, approximately 90 percent of the pilots hired by major U.S. airlines came from the military with only about ten percent being drawn from civilian aviation, including the collegiate flight programs. Today however, hiring percentage has nearly reversed due to military active duty training commitments rising from six to almost twelve years. In 2008, only about 28 percent of pilots hired by major U.S. airlines had military backgrounds compared to the 90 percent in the 1990s (Weber, 2009).

Another contribution to a decline in military pilots entering commercial air service is the stability of the U.S. airline industry. Over the past # decades, the threat of terrorism paired with unstable fuel prices have military aviators weighing their options

concerning job stability before entering the U.S. commercial airline industry. The result of a decrease in military pilots entering commercial service leaves civilian sources such as collegiate flight programs as the bulk of future professional pilot replacements to fill any anticipated pilot shortages.

### Collegiate Flight Programs

Other than military pilots, the U.S. pilot supply comes from civilian sources such as collegiate flight programs. Collegiate flight programs are responsible for providing students with the skill sets necessary to meet specific flight training to an exact ability-based standard or proficiency. Students pursuing a professional pilot degree attend collegiate flight programs with aspirations of job placement in commercial or corporate aviation.

The differences between military pilots and collegiate flight students is that military pilot training is paid for by the service; whereas, a collegiate flight student must obtain college scholarships, assume student loans, or pay for flight training expenses out of pocket. Collegiate flight students pursuing the certificates and/or ratings required to be an U.S. airline pilot takes years and may require incurring a debt comparable to that normally associated with attending medical school. In 2015, CNN Money stated that these collegiate flight training costs can exceed \$100,000. Since most U.S. collegiate flight degree programs offer a Bachelor of Science (BS) degree and can take a flight student four to five years to complete; the cost of college itself significantly increases the collegiate flight student's cost for a professional flight degree.

## CHAPTER III

### METHODOLOGY

This chapter explains the methodology utilized to analyze the perceptions of U.S. collegiate flight students after implementation of Public Law 111-216. This research is an exploratory study that examines the perceptions of U.S. collegiate flight students on PL 111-216.

The research design for this study included both descriptive and casual comparative statistics to describe collegiate flight students' data responses. Bless and Hignon-Smith (1995) stated descriptive research is used in a study when a researcher wants to understand the opinions of a group of people towards a particular issue at a particular time. In this national study, the researcher wanted to understand U.S. collegiate flight students' perceptions of PL 111-216 after implementation. Babbie (2001) recognized descriptive research as "A way of presenting data in an adaptable form, using quantitative methods to describe single variables but also to describe connotation that connect one variable to another..." (p. 435).

The methodology included in Chapter III will discuss the following areas of emphasis: (1) Objective of the Study, (2) Selection and Description of the Research

Population, (3) Description of the Research Questionnaire, (4) Reliability and Validity, (5) Procedure for Collecting Data, and (6) Statistical Procedures.

### Objective of the Study

Guided by descriptive methodology, this research study used a research questionnaire created by the researcher to identify collegiate flight students' demographic information, opinions, and personal comments to draw personal perceptions regarding post Public Law 111-216 implementation. The research questionnaire was distributed nationally to private and public collegiate universities. Participating universities were selected because they offer extensive curriculums in aviation that award a bachelor's degree in professional pilot/flight professional. All of the participating universities were also members of the University Aviation Association (UAA). The University Aviation Association is a national professional academic organization that identifies itself as the voice of collegiate aviation to its members, the industry, government, and the general public. Exploratory in nature, this study was designed to examine and describe the perceptions of collegiate flight students regarding Public Law 111-216, as well as demographic information characterizing these students. The objective of this research study was to answer the following research questions:

1. How will Public Law 111-216 affect collegiate flight students?
2. How will Public Law 111-216 affect the U.S. airline industry?

### Selection and Description of the Research Population

The research population for this study was selected by judgment sampling. Judgment sampling is defined as "Elements selected for the sample being chosen by the judgment of the researcher" (Black, 2010, p. 225). The sample population for this study



consisted of collegiate flight students who met the following criteria of being enrolled at four-year public and private universities located in the U.S. which offered comprehensive aviation curriculums, and awarded a bachelor's degree in professional pilot/flight professional. The four-year universities were also institutional members in the UAA.

Research participants had their identities protected by using the following procedures: (1) participants were notified in the introduction segment on the first page of the research questionnaire that their participation was strictly voluntary and that their responses would be kept confidential and would be anonymously coded by the researcher for statistical analysis, (2) the research questionnaire did not ask participants to identify their name or their universities name, (3) because participants did not identify their name or universities, the responses given by each individual student participant could not be linked back to the collegiate flight student, and (4) the responses submitted by participating students' was anonymously coded by the researcher and analyzed by a statistical software program, Statistical Package for Social Sciences (SPSS).

#### Description of the Research Questionnaire

The research questionnaire for this study, *The Effect of Public Law 111-216: Perceptions of US Collegiate Flight Students* (Appendix A) was created by the researcher and consisted of three specific sections. The first section of the research questionnaire consisted of four questions regarding participants' personal information. The second section of the questionnaire consisted of fourteen Likert-scale statements about participants' perceptions of PL 111-216. The final section was for participants' personal comments. In this section, participants were given a blank box at the end of the research

questionnaire to provide personal comments regarding the effect PL 111-216 may have on collegiate flight students and the U.S. airline industry.

The first section of the questionnaire generated demographic information identifying collegiate flight students: logged flight hours, flight ratings and/or certifications, financial resources to pay for flight training costs and college tuition; and career/professional aspirations regarding flight. The second section of the research questionnaire listed a series of Likert-scale statements with ordinal measurement pattern options ranging from: (4) Strongly Agree, (3) Agree, (2) Disagree, and (1) Strongly Disagree. The personal information questions and Likert-scale statements intended to gain meaningful insight into collegiate flight students' perceptions related to PL 111-216. For example, the research questionnaire asked participants the question, "What is your career aspiration regarding flight?" and Likert-scale statement "I am knowledgeable of PL 111-216 and its potential effect on collegiate flight students" to aide in identifying participants potentially affected by this legislation. The final section of the research questionnaire provided a text box allowing participants the opportunity to provide personal hand written comments regarding PL 111-216 and its effects on collegiate flight students and the overall US airline industry.

#### Reliability and Validity

The fourteen Likert-scale statements included in the research questionnaire were analyzed for internal reliability by using Cronbach's alpha. When using Cronbach's alpha, the term internal consistency can be interchanged with reliability. Tavakol and Dennick (2011) describe Cronbach's alpha as a statistical formula used to estimate internal consistency or to measure reliability of a test or scale. In this research study,

Cronbach's alpha aided in measuring how closely related all of the Likert-scale statements were as a group. When using Cronbach's alpha in research, variables are often referred to as items. When variables or items are grouped together they are often called a test or a scale. Yang & Green (2011) explains an alpha coefficient is generally regarded as one of the most used scales of reliability due to its ease of interpretation and objectiveness. According to Peterson (1994), a calculated alpha will approach 1.0 as the reliability increases, with .80 or higher being regarded a good value for the alpha value. George and Mallery (2003) states the following Cronbach's alpha acceptance scale is: "> .90 – Excellent, > .80 – Good, > .70 – Acceptable, > .60 – Questionable, > .50 – Poor, and < .50 – Unacceptable" (p. 231).

To assure content validity the research questionnaire was sent to several aviation faculty members that represent the collegiate aviation environment nationally. These faculty members were asked to examine the research questionnaire regarding coherence of the questionnaire instructions as well as the content related to the research questions. These faculty members then provided constructive suggestions that were incorporated into the final research questionnaire.

#### Procedure for Collecting Data

The procedure for the collection of data involved a multi-step process. Initially, the researcher requested participation from 17 different U.S. collegiate flight program institutions, all meeting the following requirements created by the researcher: (1) institutional membership in the University Aviation Association, and (2) four-year public or private university offering a comprehensive aviation curriculum awarding a bachelor's degree in professional pilot/flight.

The researcher identified 17 different U.S. collegiate flight programs that met the criteria of the study. The flight center managers and/or aviation faculty members employed by these universities were contacted through email. The email asked for their willingness and participation in disseminating the research questionnaire to their collegiate flight students. The initial e-mail (Appendix B) sent to the flight center managers and/or aviation faculty members explained the academic and professional importance of the study and included instructions in administering the research questionnaire. To participate, each flight center manager and/or aviation faculty member was asked to reply to the email and send the researcher their complete contact information including their name and address as well as the approximate number of collegiate flight students currently enrolled in their flight program. After receiving this information, the researcher mailed the research questionnaires and a pre-paid postage return envelope to the flight center manager and/or aviation faculty member. All participating flight center managers and/or aviation faculty members were mailed a packet of stapled research questionnaires to distribute, in person, to their collegiate flight students. After two weeks, the researcher sent an email reminding the participating flight center managers and/or aviation faculty members to encourage them to return all completed questionnaires in the provided pre-paid postage envelope to the researcher.

Initial emails and packets of questionnaires were sent to the flight center manager and/or aviation faculty member in March, 2015. After 45 days from the initial mailing of the packets, the researcher confidentially coded and analyzed data from each completed and returned questionnaire

## Procedures Statistical Analysis

Descriptive statistics were used in this study to demonstrate collegiate flight students' perceptions of PL 111-216 and to aide in answering how PL 111-216 could affect collegiate flight students and the U.S. airline industry. This study used descriptive statistics to aide in organization as well as to help analyze and summarize data from the research questionnaire. In this study, descriptive statistics was applied to the cumulative data from all returned and completed research questionnaires. Descriptive research helps describe, show or summarize data using percentages, rates, ratios, graphs, and frequency distributions (Laerd Statistics, 2015). The benefits of using descriptive statistics are to help researchers to effectively describe and communicate patterns that might emerge from the data. The descriptive statistics in this study were summarized by using frequency distributions and percentages. For example, frequency distributions were used to illustrate the ratio of the number of specific characteristic question responses from participants compared to the total number of observations. In statistics, frequency distributions report the number of cases in each category of a variable. Additionally, percentages were used to analyze participants' frequency responses. Percentages help report the results of frequency by dividing the number of cases in each category of a variable by the number of cases in all categories (Healey, 1990).

In addition to descriptive statistics, One-Way Analysis of Variance "ANOVA" was used to compare the means among more than two groups. The ANOVA groups were participants that identified on the questionnaire their future career aspirations as a commercial pilot, corporate pilot, military aviator, or other. Variance is the average of the squared deviations of the individual values. "One-way ANOVA is used to determine if

there are any statistical significant differences between the means of three or more independent variable groups on a dependent variable” (Healey, 1990, p.263).

According to Lomax and Hans-Vaughn (2012):

One way of comparing a set of means or “average” is to think in terms of how those means vary. If the sample means are all the same, then the variability of those means would be 0. If the sample means are not all the same, then the variability of those means would be somewhat greater than 0. In general, the greater the mean differences are, the greater is the variability of the means. (p. 292)

To examine the research questions for this study, an Analysis of Variance was conducted to determine if statistical significant differences existed between the Likert-scale statement “Attaining the required 1,000 flight hours specified by PL 111-216 is a significant financial concern to me as a collegiate flight student” and the collegiate flight student characteristic question, “What is your career aspirations regarding flight?”.

The ANOVA dependent variable in this research study is collegiate flight students attaining the required flight hours specified by PL 111-216 being a significant financial concern. The ANOVA independent variable is the discrete groups of commercial pilots, military aviators, corporate pilots, and others are equal. To determine whether the differences between group means are statistically significant the researcher compared the p-value to the significance level. The University of Washington (2010) states there are two ways to report p-values, which is typically .05 or .01. The p-value/significance level used in this One-Way ANOVA for this research study was .05. If the p-value is less than or equal to the p-value/significance level of .05 there is statistical significance. If the p-

value is greater than the p-value/significance level of .05 the difference between the means is not statistically significant (Lomax & Hans-Vaughn, p. 297-298).

Once the research questionnaires were returned to the researcher, the data were organized, evaluated, and anonymously coded by the researcher into the statistical analysis software program, Statistical Package for the Social Sciences (SPSS). The results and interpretation of this statistical analysis of data will be discussed in Chapter IV.

## CHAPTER IV

### FINDINGS

Chapter IV presents data based on three sections of the research questionnaire. The first section of the research questionnaire consisted of the demographics of the participating collegiate flight student. In this section, collegiate flight students were asked to identify specific personal characteristics including flight hours, flight certifications/ratings, funding flight costs, and future career aspirations. The second part of the research questionnaire consisted of list of Likert-scale statements. The Likert-scale statements revealed the perceptions of collegiate flight students regarding Public Law 111-216. Participants responded to each Likert-scale statement with the response choices of strongly agree, agree, disagree, or strongly disagree. The last section of the questionnaire consisted of a comment box, which allowed participants to provide personal comments relevant to PL 111-216 regarding their perceptions.

#### Participating Institutions and Response Rate

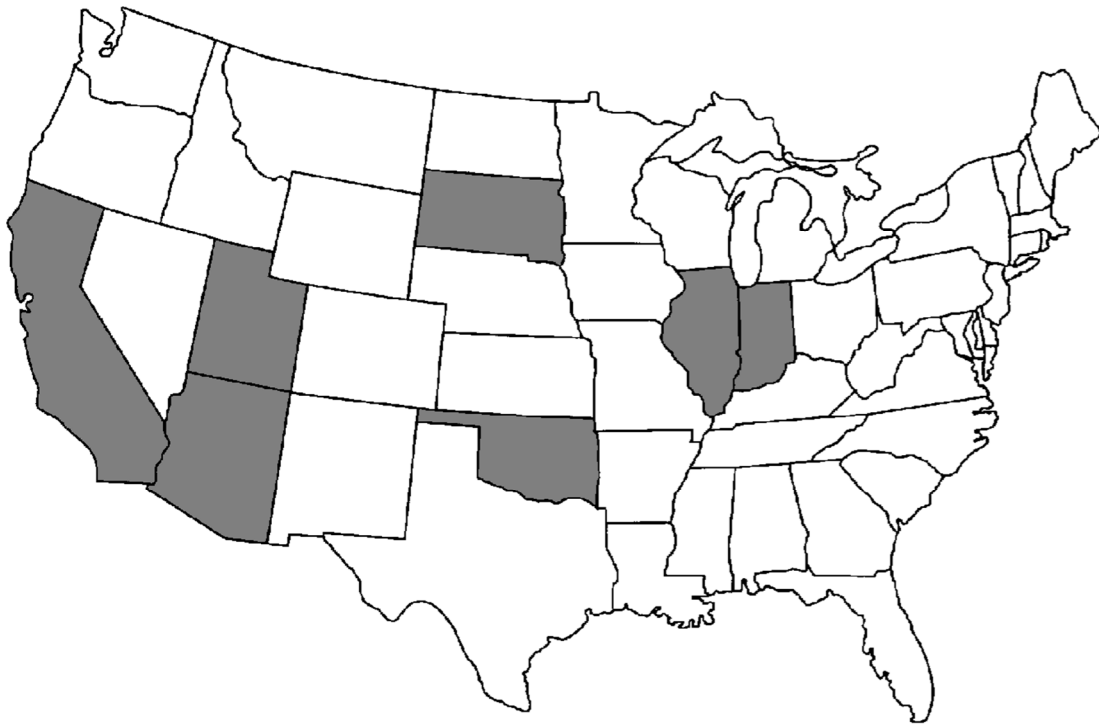
Flight center managers and/or aviation faculty from seven of the seventeen invited universities participated in the study resulting in an overall response rate of 41%. From these seven participating universities, a total of 283 collegiate flight students completed the research questionnaire. Geographically, the seven participating universities were



located in the following states: Arizona, California, Illinois, Indiana, Oklahoma, South Dakota, and Utah (Figure 1).

FIGURE 1.

*Geographic Location of Participating Institutions*



Note: shaded states represent states of participating universities.

*Collegiate Flight Students' Characteristics*

Question 1 of the research questionnaire asked each participant to identify the total number of flight hours they logged during flight training. Table 1, Collegiate Flight Students Total Logged Flight Hours, indicates that of the 283 respondents, 18% logged 0-49 flight hours, 16% logged 50-99 flight hours, 28% logged 100-199 flight hours, 20% logged 200-299 flight hours, 10% logged 300-399 flight hours, and 8% logged 400 & over flight hours.

Table 1

*Collegiate Flight Students Total Logged Flight Hours*

Number of Flight Hours	Responses	Percentage of Responses
0-49	51 of 283	18%
50-99	44 of 283	16%
100-199	80 of 283	28%
200-299	56 of 283	20%
300-399	29 of 283	10%
400 & Over	23 of 283	8%

Question 2 asked participants if they are currently a Certified Flight Instructor (CFI) and logging hours to meet the restricted ATP requirement of 1,000 flight hours. Of the 283 responses, 41 (15%) of participants identified that they were Certified Flight Instructors, as indicated in Table 2. The remaining 242 (85%) flight students identified that they were not Certified Flight Instructors. One of the Certified Flight Instructors stated in the personal comment section, “This law seriously hurt people like me and it’s been pushed on us by people who have no concept of what they’re doing and how it affects real people and real families. I make \$14 an hour and work 15 hours a week, if that. How am I supposed to pay off over \$100K in student debt?” The student continues by stating that, “Public Law 111-216 will send more US pilots overseas where we can get jobs faster and make more money after graduating college.”

Table 2

*Students Identified as Current Certified Flight Instructors*

Response Yes or No	Responses	Percentage of Responses
Yes	41	15%
No	242	85%

Question 3 asked participants to identify the percentage of their flight costs that are supported by financial aid (student loans) and/or scholarships. Table 3 shows that a majority of respondents (56%) indicated 0-24% of their flight costs are supported by

financial aid (student loans) and or scholarships; whereas, 30% answered that 75-100% of their flight costs are supported by financial aid (student loans) and/or scholarships. Only 14% of students indicated that between 25% and 74% of their flight costs were supported by financial aid (student loans) and/or scholarships.

Table 3  
*Percentage of Flight Cost Support by Financial Aid and/or Scholarships*

Percent of Flight Cost Support	Responses	Percentage of Responses
0-24%	157	56%
25-49%	21	7%
50-74%	20	7%
75-100%	85	30%

The last demographic question asked participants to identify their career aspirations regarding flight. Students were given four choices to select from: commercial pilot, military aviator, corporate pilot, and other. Table 4 illustrates participants' career aspirations regarding flight. Over half (65%) of the participants indicated their future career aspiration was to become a commercial pilot. Forty-five (16%) participants responded that their career aspiration was to fly for a corporation, and only eight percent chose the military as a career path. Participants (11%) selecting "Other" identified their career aspiration as the following: missionary pilot, aviation attorney, agriculture pilot, pipeline survey pilot, recreational pilot, or test pilot.

Table 4  
*Career Aspirations Regarding Flight*

Career	Responses	Percentage of Responses
Commercial Pilot	185	65%
Military Aviator	22	8%
Corporate Pilot	45	16%
Other	31	11%

## Collegiate Flight Students' Perceptions

The second section of the research questionnaire explored the personal perceptions of each participating collegiate flight student. Fourteen Likert-scale statements requested participants to indicate their perception of each statement by selecting one of four response options: strongly agree (SA), agree (A), disagree (D), and strongly disagree (SD). To determine the internal reliability of the Likert statements, the Cronbach statistical formula was used. Resulting data were analyzed using the IBM SPSS software. Using data from all 283 participants, the internal reliability of the questionnaire found to have an alpha coefficient of .644. Given the previous scale outlined by George and Mallery (2003), the internal reliability of the questionnaire was rated as questionable.

Table 5, Collegiate Flight Students' Knowledge and Concern of Public Law 111-216, presents data obtained from three Likert-scale statements revealing participants' perceptions of: (1) student's knowledge of PL 111-216 and its potential effect on collegiate flight students, (2) student's concern of PL 111-216 as a collegiate flight student and (3) student's perception of financial concern of attaining a minimum of 1,000 flight hours required by PL 111-216.

Table 5  
*Collegiate Flight Students' Knowledge and Concern of Public Law 111-216*

Likert-Scale Statements	SA	A	D	SD
I am knowledgeable of PL 111-216 and its potential effect on collegiate flight students.	86 30%	142 50%	31 11%	24 9%
PL 111-216 is of significant concern to me as a collegiate flight student.	131 46%	111 39%	27 10%	14 5%
Attaining the required 1,000 flight hours specified by PL 111-216 is a significant financial concern to me as a collegiate flight student.	148 52%	77 27%	40 15%	18 6%

Responding to the Likert-scale statement, “I am knowledgeable of PL 111-216 and its potential effect on collegiate flight students”, over three-fourths (80%) of participants strongly agreed or agreed that they are knowledgeable of PL 111-216 and its potential effects. The remaining 20% indicated that they were not knowledgeable of PL 111-216. When responding to the Likert-scale statement, “PL 111-216 is of significant concern to me as a collegiate flight student”, 242 participants (85%) strongly agreed or agreed that PL 111-216 was a significant concern; whereas, 15 percent of participants’ stated that PL 11-216 was not a personal concern. The majority of participants, 79%, strongly agreed or agreed with the statement, “Attaining the required 1,000 flight hours specified by PL 111-216 is a significant financial concern to me as a collegiate flight student”. Only 21 percent of participants strongly disagreed or disagreed that the increase of flight hours was a financial concern for them. Agreeing with the majority, one participant commented, “It’s not just the hourly requirement that’s hurting upcoming pilots, it’s the \$20,000 ground course we’re required to take just to qualify for taking the ATP written. The entire law was a reaction to an incident that the ramifications of the law would not have prevented in the first place. The decision to put it into law obviously wasn’t made considering how it would affect upcoming pilots.” The participant continued by stating, “Sitting in a single engine aircraft watching my students fly for 1,500 hours will not prepare me for the airlines or make me any safer once I get there, if you want us (collegiate flight students) to be safer in large aircraft, enable us cheaper and quicker access to train in them, so we can gain that experience.”

Table 6 presents data obtained from four Likert-scale statements involving the participants’ perceptions of: (1) student’s motivation to earn a Bachelor of Science degree

compared to average initial salary for Part 121 first officers, (2) prospective student's enrollment with new flight hour and restricted ATP requirements (3) retention rate of collegiate flight students due to increased flight hours, and (4) increase in current collegiate flight students pursuing other non-professional pilot aviation degrees as a result of PL 111-216.

Table 6  
*Collegiate Flight Students' Motivation and Employment Perceptions of Public Law 111-216*

Likert-Scale Statements	SA	A	D	SD
The additional flight hours (minimum of 1,000 flight hours) required by PL 111-216 affects my motivation to earn a Bachelor of Science flight degree, since the average starting salary for First Officers employed by Part 121 air carriers is only \$25,000.	104 37%	103 37%	55 19%	21 7%
PL 111-216 (restricted ATP and increased number of flight hours) will adversely affect the recruitment of prospective students enrolling in collegiate flight programs.	109 39%	124 44%	41 14%	9 3%
PL 111-216 will have a negative effect on the retention rate of collegiate flight students due to the increased mandatory flight hours (restricted ATP requires 1,000 flight hours).	94 33%	119 42%	62 22%	8 3%
PL 111-216 will cause an increase in current collegiate flight students pursuing other non-professional pilot aviation degrees (management, avionics, etc.).	80 28%	124 44%	65 23%	14 5%

The majority of participants (74%) either strongly agreed or agreed with the statement, "The additional flight hours (minimum of 1,000 flight hours) required by PL 111-216 affects my motivation to earn a Bachelor of Science flight degree, since the average starting salary for first officers employed by Part 121 air carriers is only \$25,000". The remaining participants (26%) strongly disagreed or disagreed with the statement. An overwhelming 83 percent of participants strongly agreed or agreed with the statement, "PL 111-216 (restricted ATP and increased number of flight hours) will

adversely affect the recruitment of prospective students enrolling in collegiate flight programs”; while 17 percent of students strongly disagreed or disagreed that the R-ATP will affect the recruitment of prospective collegiate flight students.

Regarding the statement, “PL 111-216 will have a negative effect on the retention rate of collegiate flight students due to the increased mandatory flight hours (restricted ATP requires 1,000 flight hours)”, the majority of participants (75%) strongly agreed or agreed that this new legislation will impact the retention rate of collegiate flight students. In regards to the retention rate, one participant indicated, “My two best friends dropped out of flight because of this. I also almost did. School is already over \$100,000 and starting jobs make very little money, as do flight instructors. This is quantity over quality.” Over seventy percent of participating students strongly agreed or agreed with the statement, “PL 111-216 will cause an increase in current collegiate flight students pursuing other non-professional pilot aviation degrees (management, avionics, etc.)”, with one student indicating, “...as a student I decided not to pursue a career in flying due to PL 111-216. I felt that 1,000 hours was a financial hardship that was not worth it. I also feel that the new rule no longer encourages quality training, it encourages flight time no matter the quality.”

Participants were also asked about their perceptions regarding whether their institution’s aviation department should be concerned about PL 111-216 and the possibility of a U.S. pilot shortage due to the requirement of the R-ATP and/or less students enrolling in collegiate flight programs. Table 7, Collegiate Flight Students’ Perceptions of Institutional Concern and Pilot Shortage, details the responses regarding these two concerns of PL 111-216.

Table 7  
*Collegiate Flight Students' Perceptions of Institutional Concern and Pilot Shortage*

Likert-Scale Statements	SA	A	D	SD
PL 111-216 should be a primary concern of the aviation department at my college/university.	129 46%	108 38%	38 13%	8 3%
PL 111-216 will cause a pilot shortage in the US due to the increase in required flight hours and/or the decrease in students enrolling in a collegiate flight program.	115 41%	113 40%	49 17%	6 2%

When asked if, “PL 111-216 should be a primary concern of the student’s aviation department”, 84 percent of participants strongly agreed or agreed; similarly, 81% of the participating students strongly agreed or agreed that, “PL 111-216 will cause a pilot shortage in the U.S. due to the increase in required flight hours and/or a decrease in collegiate flight student enrollments”. One participant stated on their comment section, “Smaller regional carriers will encounter a shortage of pilots in the next five years.”

Table 8 presents data identifying participants’ perceptions of the restricted ATP and the effect it will have on first officers. The responses from the Likert statement, “A ‘restricted ATP’ (minimum 1,000 flight hours) should be required for a first officer to be employed with a Part 121 U.S. air carrier operator”, indicated that the majority of participants (58%) strongly disagreed or disagreed that a R-ATP should be required for a first officer; however, when asked to respond to the statement, “‘restricted ATP’ requirement in PL 111-216 will make newly employed first officers more qualified and capable pilots”, a majority of participants (54%) strongly agreed or agreed that the R-ATP will make them more qualified and capable first officers. Regarding these two statements, one of the participants indicated, “1,000 hours will make a more capable FO,



however with financial issues involved it is definitely an incentive to discontinue flight training as I've had many close friends go that route. I believe 1,000 hours is a lot of time and even though the law was designed to prevent pilot error, there will always be external/internal pressures to cause pilot error because we are all human. Also the fact that most flight students were not born rich and school is expensive, many of us do not look forward to \$25,000 a year and expect to pay off loans as well as bills, food expenses, etc. There are other ways to become a more effective pilot, such as pairing an FO with an experienced captain because really an FO learns from the captain.”

Table 8  
*Collegiate Flight Students Perceptions of Restricted ATP*

Likert-Scale Statements	SA	A	D	SD
A “restricted ATP” (minimum 1,000 flight hours) should be required for a First Officer to be employed with a Part 121 US air carrier operator.	30 11%	87 31%	107 37%	59 21%
The “restricted ATP” requirement in PL 111-216 will make newly employed First Officers more qualified and capable pilots.	36 13%	115 41%	79 28%	53 18%

Lastly, three Likert-Scale statements asked participants if PL 111-216 will create a safer flight environment, will decrease the number of fatal accidents due to pilot error, and will have a significant impact on the overall U.S. commercial aviation industry.

Table 9, Collegiate Flight Students’ Perceptions of Overall Impact of PL 111-216, provides data obtained from these three statements.

Table 9  
*Collegiate Flight Students’ Perceptions of Overall Impact of PL 111-216*

Likert-Scale Statement	SA	A	D	SD
New regulations as a result of PL 111-216 will create a safer environment for Part 121 US air carrier operators.	32 11%	119 42%	91 32%	41 15%
Fatal accidents involving US airlines (due to “pilot error”) will decrease as a result of PL 111-216.	19 7%	79 28%	123 43%	62 22%

Overall, the effects of PL 111-216 will have a significant impact on pilots, as well as the entire US airline industry.	152 54%	106 37%	19 7%	6 2%
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Approximately half (53%) of the participants strongly agreed or agreed with the statement, “New regulations as a result of PL 111-216 will create a safer environment for Part 121 U.S. air carrier operators”. Sixty-five percent of students strongly disagreed or disagreed with the statement, “Fatal accidents involving U.S. airlines (due to “pilot error”) will decrease as a result of PL 111-216”. One participant indicated that, “Fatal accidents could happen for any pilot even if he/she had one million hours of flying experience.” And yet, an overwhelming ninety-one percent of participants strongly agreed or agreed that “the effects of PL 111-216 will have a significant impact on pilots, as well as the entire U.S. airline industry”.

The researcher preformed a One-Way ANOVA using Statistical Packages for Social Sciences to statistically analyze the data that was collected to answer the two research questions:

1. How will Public Law 111-216 affect collegiate flight students?
2. How will Public Law 111-216 affect the U.S. airline industry?

The One-Way ANOVA, [F (3, 279) = .743, p = 0.527] demonstrated that there was no significance difference between the independent variable and the dependent variable at the  $p < .05$ . Since the significant value was not less than .05 there is no statistical difference between the Likert-scale statement “Attaining the required 1,000 flight hours specified by PL 111-216 is a significant financial concern to me as a collegiate flight student” and the collegiate flight student characteristic question, “What is

your career aspirations regarding flight?”. The interpretation of the results, remarks, and conclusions will be presented in Chapter V.

## CHAPTER V

### CONCLUSIONS

Chapter V focuses on the impact of PL 111-216, after implementation, by demonstrating the potential influence PL 111-216 could have on collegiate flight students, collegiate aviation, as well as the U.S. airline industry. These influences are based on the perceptions of this sample of participating collegiate flight students. The perceptions of U.S. collegiate flight students identified any complications or significances regarding PL 111-216.

#### Summary of Research

This national research study explored collegiate flight students' perceptions of what?? by collecting information regarding personally logged flight hours, flight certifications, flight cost support, and career aspirations. The research study also included collegiate flight students' perceptions of PL 111-216 and personal comments regarding the implementation of PL 111-216. Seventeen collegiate flight programs were originally identified to participate in this national study. Of the seventeen collegiate flight programs, seven agreed to participate in the study, resulting in a 41% response rate. As a result of participation agreements from seven institutions, 283 collegiate flight students returned completed research questionnaires.

## Collegiate Flight Students' Characteristics

Based on the analysis of data, as indicated in Chapter IV, this research study identified that a majority (61.8%) of collegiate flight students identified that they have approximately 0-199 logged flight hours, while the remaining 38.1% have approximately 200 or more logged flight hours. To obtain an R-ATP certificate, collegiate flight students must have a minimum of 1,000 flight hours. A significant number of respondents indicated they currently have fewer than 200 flight hours; indicating they still must earn approximately 800 flight hours to obtain a R-ATP certificate.

When specifying if the participants' surveyed were Certified Flight Instructors logging hours to meet the R-ATP requirement, the majority (85.5%) responded they were not Certified Flight Instructors. Research information detailed an uneven distribution of the percentage of flight cost support for collegiate flight students. Fifty-five percent of students indicated that 0-24% of flight cost support comes from financial aid (student loans) and/or scholarships; while 30% of students' indicated 75-100% of their flight cost support comes from financial aid. The remaining 14.5% flight students indicated that 25-74% of their flight cost is supported by financial aid (student loans) and or scholarships.

The final characteristic question asked participants about their career aspirations regarding flight. Over half, 65%, indicated their future career aspirations were to become a commercial pilot. Because the majority of collegiate flight student's ambition was to become a commercial pilot, collegiate flight students that have completed this research survey identifying their career aspiration to become a commercial pilot will be directly affected by PL 111-216.

Research Question 1: How will Public Law 111-216 affect collegiate flight students?

Collegiate flight students indicate that they are knowledgeable of PL 111-216 and its potential consequence on collegiate flight students. Participants' responses to the first Likert-Scale statement: "I am knowledgeable of PL 111-216 and its potential effect on collegiate flight students", suggests that 80% of collegiate flight students surveyed actually are aware of the new federal legislation PL 111-216 and its potential outcomes for collegiate flight students' involving increased flight hour requirements associated with the R-ATP certificate. Eighty-five percent of students also identified that they strongly agreed or agreed with the Likert-scale statement: "PL 111-216 is of significant concern to me as a collegiate flight student". Participants' overall knowledge and concern of this legislation is important because the majority of these students perceive that PL 111-216 will have a definite effect on them as well as U.S. airline industry. If the majority of students in this research sample claim that they strongly agree or agree that they are knowledgeable of PL 111-216 and that it is a significant concern to them; it could be assumed that the students' Likert-scale responses are a reliable representation of collegiate flight students' perceptions.

Seventy-nine percent of respondents strongly agreed or agreed with the Likert-scale statement, "Attaining the required 1,000 flight hours specified by PL 111-216 is a significant financial concern to me as a collegiate flight student". This is thought-provoking because the majority of participants, 55%, indicated that 0-24% of flight cost is supported by financial aid, student loans, and or scholarships in the collegiate flight students' characteristics section of the research questionnaire. This response could benefit

collegiate flight programs by recognizing flight students' financial concerns due to the new 1,000 flight hour requirement. The collegiate flight programs will need to increase their efforts in providing opportunities in assisting students with financial and flight time related concerns associated with PL 111-216.

Students surveyed believe that "future recruitment of flight students and the preservation of current flight students may be affected by PL 111-216 because of increased flight hours". Eighty-two percent strongly agreed or agreed with the statement: PL 111-216 (restricted ATP and increased number of flight hours) will adversely affect the recruitment of prospective students enrolling in collegiate flight programs because students may now consider the increased amount of time and finances it will take for collegiate flight students to obtain 1,000 flight hours and an R-ATP certificate. Furthermore, students believe that PL 111-216 will adversely affect the retention rate of collegiate flight students due to a mandatory increase in flight training hours. Seventy-five percent of student participants surveyed indicated that they strongly agreed or agreed that "PL 111-216 will have a negative effect on the retention rate of students because of increased mandatory flight hours". By recognizing collegiate flight students' perceptions collegiate flight programs could help improve the collegiate flight environment for students.

Research Question 2: How will Public Law 111-216 affect the U.S. airline industry?

Collegiate flight students were asked to identify their perceptions to the Likert-scale statement: The additional flight hours (minimum of 1,000 flight hours) required by PL 111-216 affects my motivation to earn a Bachelor of Science flight degree, since the

average starting salary for first officers employed by Part 121 U.S. air carriers is only \$25,000. Seventy-three percent strongly agree or agree that the salary comparison of first officers employed by Part 121 U.S. air carriers affects their motivation to continue to earn a Bachelor degree.

Eighty percent of collegiate flight students' perceptions strongly agree or agree that PL 111-216 will cause a pilot shortage in the U.S. due to the increase in required flight hours and/or the decrease in students enrolling in a collegiate flight program. In concerns to the restricted ATP requirement, 59% of collegiate flight students surveyed strongly disagree or disagree with the Likert-scale statement: A "restricted ATP" (minimum 1,000 flight hours) should be required for a first officer to be employed with a Part 121 U.S. air carrier operator. The research results indicated that 65% of collegiate flight students strongly disagree or disagree, that fatal accident involving U.S. airlines due to "pilot error" will decrease as a result of PL 111-216.

The final Likert-scale statement: Overall, the effects of PL 111-216 will have a significant impact on pilots, as well as the entire U.S. airline industry. Ninety-one percent of collegiate flight students strongly agree or agree. While only less than 10% disagreed or strongly disagreed.

As defined in Chapter IV, One-Way ANOVA identified no statistical difference between collegiate flight students that identified that their future career aspirations were either to become a commercial pilot, military aviator, corporate pilot, or other in relation to the 1,000 flight hours specified by PL 111-216 being a significant financial concern. This is a unique perception because of the complexity of the percentage of students that identified that only 0-24% of flight cost were supported by financial aid, student loans, or



scholarships as well as the requirement for the R-ATP only applies to aviators operating under a Part 121 certificate which would be the students that identified their career aspirations to become commercial pilots.

### Conclusions

This study, *The Effect of Public Law 111-216: Perceptions of US Collegiate Flight Students*, sought to develop a deeper understanding of the perceptions that collegiate flight students hold regarding PL 111-216 and the effects the Law could have on the collegiate flight student, the collegiate flight environment, and the U.S. airline industry. By understanding and interpreting collegiate flight students' perceptions. This research study attempted to identify problems and concerns of collegiate flight students that could affect not only collegiate flight students, but also the collegiate flight environment and the U.S. airline industry.

As detailed in Chapter II, collegiate flight students constitute a proportion of future pilot supply for Part 121 U.S. commercial carriers. Historically, the U.S. airline industry gets its pilot supply from sources such as collegiate flight programs, trained military pilots, and civilian sources. "Until the 1990s, roughly 90 percent of the pilots hired by major US carriers came from the U.S. military. Today however, hiring percentage have nearly reversed due to military active duty training commitments rising from six to almost twelve years" (Duggar, Smith, and Harrison, 2009, p. 2). To hold on to its trained pilots, the military has offered incentive programs such as wage increases and bonuses, thereby contributing to the decrease of military pilots transitioning into commercial airline service. The result of a decrease in military pilots entering commercial service leaves civilian sources such as collegiate flight programs as the bulk

of future professional pilot replacements to fill any anticipated pilot shortages. The military keeping qualified pilots longer creates an increased need for qualified collegiate flight students that meet the new requirements set forth by PL 111-216. If collegiate flight students that identified their career aspirations to become a commercial pilot are unable to meet the new R-ATP certification requirements, the U.S. airline industry could suffer professional pilot replacement problems for any future pilot shortages.

Based on the data from this sample of collegiate flight students' perceptions, PL 111-216 should be a primary concern of future collegiate flight students, collegiate flight programs, and the U.S. airline industry. When participants were asked to identify their career aspirations regarding flight, over 65% of students indicated they sought to become commercial pilots. As identified in Chapter II, to become a first officer for a Part 121 carrier a collegiate flight student must obtain an R-ATP certificate requiring a minimum of 1,000 flight hours. Since over 65% of students indicated that their career aspirations are to become commercial pilots the assumption of the researcher would be that 65% will be required to obtain an R-ATP certificate and the 1,000 flight hours required by PL 111-216 to fly as a first officer in a Part 121 commercial carrier.

The One-Way ANOVA suggest that there is no statistical differences between students that identified their future careers as commercial pilots, corporate pilots, military aviator, or other when asked about the financial concern of obtaining the 1,000 flight hours required by PL 111-216. The researcher found this One-Way ANOVA data to be interesting because students who listed corporate pilot, military aviator, and other as their career aspiration option are not required to obtain an R-ATP certificate under the new legislation PL 111-216. These perceptions are compelling because these pilot groups (i.e.

corporate pilots, military aviators, and other) do not operate under a Part 121 commercial certificate and are not required to obtain an R-ATP certificate. However, although these pilot groups are not impacted by PL 111-216 they identified that the 1,000 flight hours required by PL 111-216 is a financial concern. This indicates the impact of this legislation to collegiate flight training and the U.S. airline industry.

Additionally, the majority of students identified as wanting to become a commercial pilot responded to the Likert-scale that it is a significant financial concern to them as collegiate flight students. However, when asked to indicate their percentage of flight cost supported by financial aid, student loans, or scholarships the majority (56%) indicated that between zero and 24% were supported. This could be considered a contradiction of students identifying that it is a financial concern and the percentage of flight cost support the student receives outside of financial aid, student loans, or scholarships.

Although 65% of participants surveyed aspire to become commercial pilots, 61% have less than 200 logged flight hours. This represents an approximate 800 flight hour gap between the majority of students that identified they want to become commercial pilots and meeting the minimum 1,000 flight hours to obtain an R-ATP certificate. The 800 flight hour gap represents time and finances collegiate flight students will encounter to fulfill students that identified their career aspirations to become commercial pilots. Because the U.S. airline industry will rely heavily on collegiate flight students as the bulk of the future U.S. pilot supply. This flight hour gap will impact the U.S. airline industry directly because the majority of U.S. pilot supply that once came from military aviators is

now relying on collegiate flight students to fill the projections of new pilots needed in the U.S.

Prior to PL 111-216, collegiate flight students could have earned as few as 500 total flight hours with a commercial pilot certificate before gaining employment with a Part 121 air carrier as a first officer. Sixty-one percent of students surveyed identified that they have logged less than 200 flight hours which represents a substantial difference between the previous requirement of a certified commercial pilot certificate and the new 1,000 flight hours required for an R-ATP certificate. Currently, because of the implementation of PL 111-216 the required amount of flight hours has doubled. Prior to PL 111-216, pilots operating as first officers, under Part 121 carriers, were not required to have earned an ATP certificate. A student expresses their concerns about the new flight hour requirements and ATP certificate. The student said, “The requirements of flight hours are too high for achieving the ATP and cause student pilots to spend too much money on their flight training.” Similar remarks were made by another student, the student wrote, “Many students will have a hard time leaving a university with 300 hours and having to get another 700 hours for the R-ATP. Not all students want to stay at their school and become a CFI.”

Students unable to meet the flight hour requirements due to finances or the increased amount of time it takes to reach the 1,000 flight hour minimum could be a concern to the U.S. airline industry. This could concern the U.S. airline industry considering the predictions of retirements from major carriers such as American Airlines, Delta Airlines, United Airlines, and Southwest Airlines; as well as, Boeing’s projected need of qualified pilots needed in North America. Especially if, as a result, there is a

decline in qualified collegiate flight students entering the U.S. commercial pilot pool and going overseas for employment to avoid the 1,000 flight hour requirement.

Students were presented a Likert-scale statement asking if they considered themselves knowledgeable about PL 111-216 and its potential effects on collegiate flight student. This statement was presented to the participating students to aid the researcher to interpret the overall results to ensure students' answers were reliable and accurate. The results indicated that 80% of students identified that they are knowledgeable of PL 111-216 and its potential effects on collegiate flight students. A collegiate flight student indicated their knowledge of PL 111-216 and its potential effects with this personal comment, "Coming into school I knew I wanted to fly and didn't know anything about ATP certificates, I now care more about the new restricted ATP minimums because now I must take 30 hours of ground instruction and 10 hours of Class D sim time on top of the 1,000 hours to qualify for an ATP." This statement demonstrates the perception of increased student concerns regarding the 1,000 flight hour requirement and R-ATP certificate set forth by PL 111-216.

The most common concern expressed in the personal comments section is collegiate flight students' concern of the financial increase associated with the increased amount of flight hours required by PL 111-216. However, when asked "What percentages of your flight cost are supported by financial aid (student loans) and or scholarship?" fifty-six percent of students declared that between zero and 24% of flight costs were supported, while 30% of students indicated that 75-100% of flight costs were supported by financial aid and scholarships. The remaining 14% of students declared 25-74% was supported by financial aid and scholarships. Since 56% of collegiate flight students

identified that between 0-24 percent of flight cost were supported by financial aid, student loans, or scholarships; this research study indicates that the majority of collegiate flight students are supported financially by an outside source other than financial aid, student loans, or scholarships.

Collegiate flight students believe that the additional amount of flight hours it takes to receive an R-ATP certificate will affect student motivation to complete their degrees. Seventy-three percent of students agreed that the additional flight hours (minimum of 1,000 flight hours) required by PL 111-216 will negatively affect student motivation to earn a Bachelor of Science flight degree compared to the starting salary for first officers employed by Part 121 U.S. air carriers. The average starting salary for a first officer employed by a Part 121 U.S. air carrier is under \$30,000 annually while the cost of a four-year Bachelor degree in flight is substantially higher. As stated in numerous personal comments from the respondents, the high cost of flight training and potential initial salary can be a significant barrier regarding student ambition to complete flight training. One student specified, “The income isn’t there to recruit future pilots. The degree and flight training is already expensive and with this requirement, it only makes it worse for the overall future pilot population.”

The association between the initial average starting annual salary of a Part 121 first officer and the average cost of a Bachelor degree in flight could make collegiate flight students decide to pursue other non-professional pilot aviation degrees, which could directly affect collegiate flight programs and the U.S. airline industry. To help verify if collegiate flight students perceived that flight students would pursue other degrees as a result of PL 111-216, the research questionnaire presented the Likert-scale

statement PL 111-216 will cause an increase in current collegiate flight students pursuing other non-professional pilot aviation degrees including management and avionics.

Seventy-two percent of students strongly agree or agree with the statement. One student actually responded, "Increased flight hours may make it difficult for most students and cause them to wash out due to financial reasons; However in this industry I believe it's more important to focus on quality more than quantity". Additionally, another student remarked, "Increasing required hours - increases flight training cost. Therefore some aspiring pilots will switch career paths leading to a shortage." These personal comments are examples of current students confirming the possibility that current collegiate flight students could pursue other non-professional pilot aviation degrees as a result of PL 111-216. If students pursue other degrees it could directly affect collegiate flight programs and the U.S. airline industry.

The findings indicated that 83% of collegiate flight students surveyed perceive that aviation departments at their college/university should be concerned about PL 111-216; with one student indicating, "This law will cause a negative impact on the number of prospective aviation students at universities and reduce the number of commercial pilots available to airlines." A collective concern of most students' personal comments is the aspect of time and finances. One student states, "...1,000 flight hours is still an incredible cost that may alter students, simply because they cannot afford it." According to this sample population of collegiate flight students' perceptions, PL 111-216 has the potential to directly affect collegiate flight programs.

As indicated in personal comments, if students' perceptions are correct, collegiate flight programs could see a potential decrease in perspective students; as well as, the

retention of collegiate flight students. Since the majority of the U.S. commercial pilot supply is now coming from the collegiate flight environment, PL 111-216 creates a time and financial issue for students which could result in a student's decision to pursue other degree options. If collegiate flight students no longer pursue professional pilot degrees or aviation related degrees' it could persuade collegiate flight programs to reevaluate their flight cost and could create a new financial dynamic for the collegiate flight program.

Eighty percent of students surveyed responded they believed that PL 111-216 will cause a pilot shortage in the U.S. due to the increase in required flight hours and/or the decrease in students enrolling in collegiate flight programs. If students' perceptions are correct, collegiate flight programs and the U.S. airline industry could potentially experience a decrease in student enrollment which will ultimately lead to a shortage in the qualified U.S. pilot supply. One student stated, "PL 111-216 will send more U.S. pilots overseas where we can get jobs faster and make more money after graduating college." Another student who identified as a Certified Flight Instructor remarked, "The decision to put PL 111-216 into law obviously wasn't made considering how it would affect upcoming pilots. Sitting in a single-engine aircraft watching my students fly for 1,500 hours will not prepare me for the airlines or make me any safer once I get there." The student continued by saying, "...PL 111-216 is hurting the industry. If you want us to be safe in large aircraft, enable us cheaper and quicker access to train in them, so we can get that experience under our belts." These personal comments exemplify the possibilities of U.S. collegiate flight students going overseas to gain employment in order to avoid the time and financial hardship associated with increased flight hours and R-ATP requirements, which could ultimately contribute to a U.S. pilot shortage. These



personal comments also demonstrate students' perceptions of the importance of quality amount verses quantity amount of flight training hours.

When presented with the Likert-scale statement: A "restricted ATP" (minimum 1,000 flight hours) should be required for a first officer to be employed with a Part 121 U.S. air carrier operator, 59% of students surveyed strongly disagree or disagree with the ATP certificate and flight hour minimum of 1,000 hours. This is a significant response because 65% of students indicated that their future career aspirations are to become commercial pilots, when traditionally in the U.S. airline industry the entry level position for a professional pilot in a Part 121 U.S. carrier is as a first officer.

Sixty-six percent of students also strongly disagree or disagree with the Likert-scale statement: Fatal accidents involving U.S. airlines (due to "pilot error") will decrease as a result of PL 111-216. Regarding this statement one respondent commented, "I do not feel that requiring an ATP for first officers will bring any increase to safety. It will add significant burden to aspiring pilots and aviation programs." Another student remarked, "... I believe 1,000 hours is a lot of time and even though the law was designed to prevent pilot error there will always be external and internal pressures to cause pilot error because we are all human." The student continued by saying, "... there are more ways to become a more effective pilot, such as pairing a first officer with an experienced captain." Agreeing with the majority, another student addresses that, "Accidents will happen no matter the amount of flight hours." Additionally, another student remarked, "Fatal accidents could happen for any pilot even if he had one million hours flying experience. So I strongly disagree that it will decrease because of PL 111-216."

Although after Colgan Flight 3407, one of the primary reasons for implementation of PL

111-216 was increased safety. According to the perceptions of collegiate flight students, increased flight hours will not improve safety and will not decrease fatal accidents involving U.S. airlines.

The researcher found these responses from collegiate flight students interesting because the purpose of PL 111-216 was the improvement of safety and increase pilot standard requirements, but the majority of collegiate flight students' perceptions disagree. In Chapter II, the instance cited by Landsberg (2010) describes how the families of Colgan Flight 3407 were lead to believe that an increase of the first officer's flight hours would have prevented the fatal crash. When in fact the first officer had well over 1,000 flight hours, which is the new requirement for the R-ATP under PL 111-216 for collegiate flight students.

The results collected from this national study indicated 91% of collegiate flight students strongly agree or agree that overall the effects of PL 111-216 will have a significant impact on pilots, as well as the entire U.S. airline industry. An indication of the three sections of the research study *The Effect of Public Law 111-216: Perceptions of U.S. Collegiate Flight Students* the majority of students surveyed perceive that PL 111-216 will negatively impact collegiate flight students wanting to pursue careers as Part 121 commercial pilots. One student said, "PL 111-216 is the worst thing the U.S. could have done to its aviation industry. The requirements for the ATP written are incredibly stupid. Just because someone has a lot of hours do not mean they are a good/safe pilot. Those hours could have been done doing stupid reckless things." The student finishes their personal comment by saying, "This has affected me directly."

## Summary

Overall, collegiate flight students perceived that PL 111-216 will affect collegiate flight students and the U.S. airline industry. According to the results from 283 collegiate flight students, PL 111-216 will affect the collegiate flight environment, collegiate flight students, students pursuing careers as Part 121 commercial pilots, and the U.S. airline industry.

Collegiate flight students' primary concern is the financial difficulties as a result of PL 111-216. Students believe that PL 111-216 will create an issue for students obtaining a Bachelor's degree concerning paying for flight training cost and the time it takes to reach minimums. As a result of high tuition, flight cost, and time students also perceive that PL 111-216 will affect the ambition of remaining motivated to complete their degree.

In addition, students believe that as a result of PL 111-216 there will be a decrease in collegiate flight student enrollment and/or retention in collegiate flight programs. Collegiate flight students also perceive that the implementation of increased flight hours and R-ATP certificate will not create a safer environment for commercial aviation or decrease fatal accidents due to pilot error. Because the perceived direct effect on collegiate flight students, the U.S. airline industry will also be affected by PL 111-216 which could be shown in numerous possibilities. These possibilities could include a decrease in regional service, a decrease in qualified pilots to fill retirement gaps, and a decrease of collegiate aviators to make up for military aviators staying in the service.

## Recommendations

Based on the findings and conclusions of this study, the researcher offers the following recommendations.

### Recommendation 1

Collegiate Flight students should familiarize and educate themselves on the new qualification requirements and all pertinent information related to PL 111-216, since 80% of responding students agreed the new 1,000 flight hours requirement is a significant financial concern. Students should consider the time, commitment, and financial aspect it takes to obtain an R-ATP certificate with the minimum requirement of 1,000 flight hours. Students should also take into consideration how they plan to obtain the 1,000 flight hour minimum required to obtain an R-ATP certificate. While considering time, commitment, and finances students should also consider the average starting salary for an entry level position as a first officer employed by a Part 121 commercial carrier compared to the average tuition cost to complete a four-year bachelor degree in flight.

### Recommendation 2

Since the study was conducted only two years after implementation. The researcher believes that potentially collegiate flight students would be more knowledgeable of the effects of PL 111-216 on collegiate flight students and the U.S. airline industry five-years after implementation. The researcher would recommend this study be conducted again five-years after implementation to determine if collegiate flight student perceptions may be different from the results of this study.

### Recommendation 3

Seventy-five percent of students believe that PL 111-216 will have a negative effect on the retention rate of collegiate flight students due to the increase in mandatory

flight hours. Seventy-two percent of students believe PL 111-216 will cause an increase in current collegiate flight students pursuing other non-professional pilot aviation degrees. Therefore, collegiate flight programs need to make efforts, to make flight cost more affordable for collegiate flight students. Collegiate flight programs should take into consideration the cost for the average student to finish a Bachelor degree in flight with the new flight hour minimums. This may allow programs to make adjustments to encourage students to complete their degree. Although, each program is different and has different flight cost and degree requirements, each collegiate flight program could provide more financial aid through the college/university or increase the availability of scholarships. If collegiate flight programs can adjust for high flight cost experienced by collegiate flight students it can help deter students pursuing other non-flight related degrees.

#### Recommendation 4

Ninety-one percent of collegiate flight students indicated that PL 111-216 will have a significant impact on pilots as well as the entire U.S. airline industry. Although PL 111-216 is a fairly new legislation, the U.S. aviation industry should examine any decrease in coming years in qualified pilots or any negative effects on the industry as a result of PL 111-216. If the industry begins to see any problems with pilot shortage because of lack of collegiate flight students entering the future pilot pool, perhaps aviation experts can present the problem to congress to reconsider the amount of flight hours required by PL 111-216 to obtain an R-ATP.

## Recommendation 5

The information obtained by this research initiative may be useful to U.S. legislators and industry professionals to help make improvements in the future for flight hour requirements for collegiate flight students. This research may aid in facilitating further discussion and implementing change within the aviation industry, as industry decision makers become more knowledgeable of the issues and concerns facing collegiate flight students and their collegiate flight programs as a result of this study's findings.

### Recommendations for Further Research

1. Further research studies are needed to determine if collegiate flight students receive outside financial support from parents or other sources for collegiate flight cost other than examples listed on the research survey: financial aid, student loans, and/or scholarships. Research should be conducted that will gather information on specifically how the majority of students (56%) that identified 0-24% of flight cost are supported by financial aid, scholarships, and or student loans support flight cost. Results from the research could determine the significance of student financial resources and its potential effect to a perceived decline in future pilot numbers and effects on collegiate flight students.
2. A further study is recommended to explore the perceptions of the U.S. airline industry regarding PL 111-216. This research study should seek to answer if experts within the U.S. airline industry perceive any problems as a result of PL 111-216, specifically involving a decline in qualified pilots from collegiate flight programs. The study should attempt to seek if the U.S. airline industry perceives

that PL 111-216 will create a safer environment for commercial aviation in the U.S., if PL 111-216 will reduce pilot error related fatal accidents, and if the R-ATP will make newly employed first officers more qualified and capable pilots. This type of research could benefit from personal interviews from industry leading experts and aviation professionals. Answers to these questions could offer a comprehensive explanation regarding the perceptions of the U.S. airline industry.

3. As another recommendation for future research, the majority of respondents indicate negativity to PL 111-216, its affects to them and the industry. Research that identifies what changes to PL 111-216 would improve these issues would be beneficial.
4. The researcher believes future research is needed and would be beneficial to examine and calculate the average financial cost as well as the average time it takes a collegiate flight student to meet the new requirements set forth by PL 111-216. This information would be beneficial in determining any further issues with PL 111-216.
5. Since only two years have passed since the enactment of PL 111-216 at the time of this study, future research should reevaluate these same issues after five or ten years. This study gathered the initial responses and reaction of effects from new legislation and student perceptions may change over time as students and collegiate flight programs adjust and adapt to this issue.

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## APPENDICES



## Appendice A

### Research Questionnaire

## **The Impact of Public Law 111-216: *Perceptions of US Collegiate Flight Students***



In 2010, the US Congress passed a bill titled the “Airline Safety and Federal Administration Extension Act of 2010” requiring first officers in FAR Part 121 operations to hold an Airline Transport Pilot (ATP) certificate requiring a minimum of 1,500 flight hours. This bill, which was signed into law as **Public Law 111-216**, gave US airlines three years to comply with this new provision, so it took effect on August 2, 2013. Accordingly, pilots not holding an ATP by this 2013 deadline would not be permitted to fly for an air carrier in Part 121 operations.

FAA recently enacted a rule which allows for some reduced flight time requirements and the creation of a new type of certificate known as a “restricted ATP.” A “restricted” ATP certificate will require the pilot to have reached age 21 (versus age 23 for an “unrestricted” ATP), and a minimum flight experience of 1,000 hours for pilots who have completed a four-year degree professional pilot curriculum from an accredited college or university.

This research study is designed to examine the perceptions of US collegiate flight students of the impact of Public Law 111-216. The participants of this study will consist of collegiate flight students enrolled in an academic collegiate flight program at 4-year public or private universities in the United States offering comprehensive aviation curriculums in Professional Pilot/ Flight Professional.

The researchers, ***Dr. Timm J. Bliss & Mallory K. Casebolt, Oklahoma State University*** strongly believe that information obtained in this research initiative can be significant because it will provide answers and information regarding the perceived effectiveness of Public Law 111-216; and this research data will be useful to collegiate flight students, decision makers in the US airline industry, and legislators. Obtaining valid facts regarding the perceptions of collegiate flight students will add an academic stimulus to the aviation industry.

Your participation in this study is **strictly voluntary**. Your response to each survey question will remain confidential and will be anonymously coded for the statistical analysis. It will be understood by the researchers if you complete this survey and submit your responses back to the researchers, you have agreed and given your consent to participate in this study.

The researchers of this study personally *thank you* for your feedback and support of this research.

If you have questions regarding this study, please contact Mallory Casebolt at 918.688.7116 or Mallory.Casebolt@okstate.edu or IRB Office at 223 Scott Hall, Stillwater, OK 74078, 405-744-3377 or [irb@okstate.edu](mailto:irb@okstate.edu)



## II. Collegiate Flight Students Perceptions of Public Law 111-216

Please indicate your perceptions using the following scale:

**SA=Strongly Agree, A=Agree, D=Disagree, or SD=Strongly Disagree**

I am knowledgeable of PL 111-216 and its potential effect on collegiate flight students.  SA  A  D  SD

PL 111-216 is of significant concern to me as a collegiate flight student.  SA  A  D  SD

Attaining the required 1,000 flight hours specified by PL 111-216 is a significant financial concern to me as a collegiate flight student.  SA  A  D  SD

The additional flight hours (minimum of 1,000 flight hours) required by PL 111-216 affects my motivation to earn a Bachelor of Science flight degree, since the average starting salary for First Officers employed by Part 121 US air carriers is only \$25,000.  SA  A  D  SD

PL 111-216 (restricted ATP and increased number of flight hours) will adversely affect the recruitment of prospective students enrolling in collegiate flight programs.  SA  A  D  SD

PL 111-216 will have a negative effect on the retention rate of collegiate flight students due to the increased in mandatory flight hours (restricted ATP requires 1,000 flight hours).  SA  A  D  SD

PL 111-216 will cause an increase in current collegiate flight students pursuing other non-professional pilot aviation degrees (management, avionics, etc.).  SA  A  D  SD

PL 111-216 should be a primary concern of the aviation department at my college/university.  SA  A  D  SD

PL 111-216 will cause a pilot shortage in the US due to the increase in required flight hours and/or the decrease in students enrolling in a collegiate flight program.

SA    A    D    SD

A “restricted ATP” (minimum 1,000 flight hours) should be required for a First Officer to be employed with a Part 121 US air carrier operator.  SA  A  D  SD

The “restricted ATP” requirement in PL 111-216 will make newly employed First Officers more qualified and capable pilots.  SA  A  D  SD

New regulations as a result of PL 111-216 will create a safer environment for Part 121 US air carrier operators.  SA  A  D  SD

Fatal accidents involving US airlines (due to “pilot error”) will decrease as a result of PL 111-216.  SA  A  D  SD

Overall, the effects of PL 111-216 will have a significant impact on pilots, as well as the entire US airline industry.  SA  A  D  SD

### **III. Personal Comments**

Please indicate any additional comments you may have regarding PL 111-216 and its effects on collegiate flight students and the US airline industry.

## Appendice B

### Recruitment Email

Dear Collegiate Flight Managers and/or Aviation Faculty:

**Mrs. Mallory Casebolt & Dr. Timm Bliss (dissertation advisor), Oklahoma State University** is conducting a national research study designed to examine collegiate flight students' perceptions of Public Law 111-216. The participants for this research study will consist of US collegiate flight students at 4-year public or private universities (UAA membership) offering comprehensive aviation curriculums in Professional Pilot/ Flight Professional. The flight students (participants) will complete a brief three-page research questionnaire (attached for your review).

The final research report will be written by the primary researcher, **Mrs. Mallory Casebolt**, as my doctoral dissertation.

The researchers sincerely request your participation in this national study. To participate please:

- Reply to this email with number of research questionnaires needed and send me your complete mailing address for the purpose of mailing copies of the research questionnaires to you.
- After receiving the questionnaires, please disseminate them to your collegiate flight students for completion.
- After your flight students have completed their research questionnaire, please place them in the "postage-paid" return envelope and mail them back to me.

Your willingness to participate and support this research study (doctoral dissertation) is greatly appreciated. *Oklahoma State University, Office of University Research Compliance, has approved this research study (IRB Protocol: ED-15-49).*

If you have questions please do not hesitate to call Dr. Bliss (timm.bliss@okstate.edu 405.334.1206) or myself (m\_casebolt1407@yahoo.com 918.688.7116).

Respectfully,

Mallory Casebolt, *Doctoral Candidate*  
Oklahoma State University



## Appendice C

### Approval of IRB Application

## Oklahoma State University Institutional Review Board

Date: Thursday, March 19, 2015  
IRB Application No ED1549  
Proposal Title: The impact of public law 111-216 perceptions of US collegiate flight students

Reviewed and Exempt  
Processed as:

**Status Recommended by Reviewer(s): Approved Protocol Expires: 3/18/2018**

Principal  
Investigator(s):

Mallory Casebolt	Timm Bliss
6179 C. R. 1701	318 Willard
Hominy, OK 74035	Stillwater, OK 74078

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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.

0 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. Protocol modifications requiring approval may include changes to the title, PI advisor, funding status or sponsor, subject population composition or size, recruitment, inclusion/exclusion criteria, research site, research procedures and consent/assent process or forms
2. Submit a request for continuation if the study extends beyond the approval period. 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 the 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 Dawnett Watkins 219 Cordell North (phone: 405-744-5700, dawnett.watkins@okstate.edu).

Sincerely,  
  
Institutional Review Board

Dear Collegiate Flight Managers and/or Aviation Faculty:

*Dr. Timm J. Bliss & Mrs. Mallory K. Casebolt, Oklahoma State University* is conducting a research study on the impact of Public Law 111-216 perceptions of collegiate flight students.

This research study is designed to examine collegiate flight students' perceptions of Public Law 111-216. The participants for this research study will consist of US collegiate flight students at 4-year public or private universities offering comprehensive aviation curriculums in Professional Pilot/ Flight Professional. **The participants will complete a brief three-page survey (attached for your review).**

The final research report will be written by the primary researcher *Mrs. Mallory Casebolt* as a doctoral dissertation.

The researcher would greatly appreciate your participation in this study. To participate please:

- Reply to this email and send us your complete mailing address for the purpose of mailing the survey for completion
- After receiving the research packets via mail, please disperse to collegiate aviation students so they can complete the survey
- After the students have completed their survey, please place them in the return envelope and mail them back to the researchers.

Your consideration to participate and support this research is greatly appreciated.

If you have questions please do not hesitate to call one of us. Timm Bliss (405.334.1206) or Mallory Casebolt (918.688.7116).

Okl. State Univ.
IRB
Approved 3-19-15
Expires 3-18-18
IRB # ED-15-49

## The Impact of Public Law 111-216: Perceptions of US Collegiate Flight Students

In 2010, the US Congress passed a bill titled the "Airline Safety and Federal Administration Extension Act of 2010" requiring first officers in FAR Part 121 operations to hold an Airline Transport Pilot (ATP) certificate requiring a minimum of 1,500 flight hours. This bill, which was signed into law as Public Law 111-216, gave US airlines three years to comply with this new provision, so it took effect on August 2, 2013. Accordingly, pilots not holding an ATP by this 2013 deadline would not be permitted to fly for an air carrier in Part 121 operations. FAA recently enacted a rule which allows for some reduced flight time requirements and the creation of a new type of certificate known as a "restricted ATP." A "restricted" ATP certificate will require the pilot to have reached age 21 (versus age 23 for an "unrestricted" ATP), and a minimum flight experience of 1,000 hours for pilots who have completed a 4 year degree professional pilot curriculum from an accredited college or university.

This research study is designed to examine the perceptions of US collegiate flight students of the impact of Public Law 111-216. The participants of this study will consist of collegiate flight students enrolled in an academic collegiate flight program at 4-year public or private universities in the United States offering comprehensive aviation curriculums in Professional Pilot/ Flight Professional.

The researchers, *Dr. Timm J. Bliss & Mallory K. Casebolt, Oklahoma State University* strongly believe that information obtained in this research initiative can be significant because it will provide answers and information regarding the perceived effectiveness of Public Law 111-216; and this research data will be useful to collegiate flight students, decision makers in the US airline industry, and legislators. Obtaining valid facts regarding the perceptions of collegiate flight students will add an academic stimulus to the aviation industry.

Your participation in this study is strictly voluntary. Your response to each survey question will remain confidential and will be anonymously coded for the statistical analysis. It will be understood by the researchers if you complete this survey and submit your responses back to the researchers, you have agreed and given our consent to participate in this study.

The researchers of this study personally *thank you* for your feedback and support of this research.

If you have questions regarding this study, please contact Mallory Casebolt at 918.688.7116 or Mallory.Casebolt@okstate.edu or IRB Office at 223 Scott Hall, Stillwater, OK 74078, 405-744-3377 or irb@okstate.edu

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Doctor of Education

Thesis: THE IMPACT OF PUBLIC LAW 111-216: PERCEPTIONS OF US COLLEGIATE FLIGHT STUDENTS

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