

LAUNCHING DREAMS: A TRANSCENDENTAL PHENOMENOLOGICAL STUDY
DESCRIBING WHAT IT MEANS TO BE AN UNDERREPRESENTED STUDENT IN A
COLLEGIATE AVIATION PROGRAM

by

James P. Molloy

Liberty University

A Dissertation Presented in Partial Fulfillment

Of the Requirements for the Degree

Doctor of Education

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ABSTRACT

The purpose of this transcendental phenomenological study was to explore and describe what it means to be an underrepresented student in a collegiate professional pilot degree program. The central research question for this study was: What does it mean to be an underrepresented student in a collegiate professional pilot degree program? The four sub-questions were: (a) What influence do cognitive-person attributes have on meaning that is experienced and described by the underrepresented aviation student?, (b) What influence do gender and race have on meaning that is experienced and described by underrepresented aviation student?, (c) What influence does the contextual environment have on meaning that is experienced and described by the underrepresented aviation student?, and (d) What meaning do underrepresented aviation students ascribe to their experience in terms of social justice and equality as it relates to their academic and career development? The theories guiding this study were critical theory (CT) and social cognitive career theory (SCCT). Participants were 15 female and racial minority students in professional pilot degree programs at three four-year universities. Interviews, a focus group and written questionnaires provided data for phenomenological data analysis and a rich description of the phenomenon. The results provided five themes, which captured the essence of the lived experience of the underrepresented aviation student. Passion for flight was the motivation and drive for the students, and their passion transcends their identity as an underrepresented student. Collegiate aviation programs treat everyone equally and provide welcoming environments for all students to help them in achieving success. Future research can add to the results by comparing the experience of students who are not classified as underrepresented.

Keywords: collegiate aviation, critical theory, pilot, social cognitive career theory, underrepresented student, underrepresented minority

Dedication

I am dedicating this dissertation to my wife, Kelly, who lovingly supported me throughout the many years of coursework, research, and writing. It has been an amazing journey together.

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I would like to acknowledge and sincerely thank the members of my dissertation committee for their dedicated and expert coaching and advice in guiding this work and my development as a researcher. My committee chair, Dr. John Duryea was a patient and calm guide every step of the way. He gently steered me along the path to producing a coherent study and manuscript. Committee member and research consultant, Dr. Fred Milacci helped greatly to maintain my sanity in every high and low point throughout the process. He influenced my journey beyond Moustakas and into many other gurus of phenomenology, places I never envisioned going in my lifetime. I believe the key to my successful completion was our many morning meetings at Starbucks. I also appreciate very much Dr. Julie Speakes' expert and thorough editing along the way. As a quantitative researcher, she also provided another valuable viewpoint.

My favorite part of this work was my time spent with the college students who were my research participants. I thoroughly enjoyed our interview sessions and getting to know them in their world. I appreciate their willingness to speak with me openly about their experiences. My colleague and friend, Dr. Mitch Morrison, provided peer advice and encouragement throughout the process, and I appreciate him very much for that.

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List of Abbreviations

Air Traffic Control (ATC)

Airline Transport License (ATP)

Certified Flight Instructor (CFI)

Critical Theory (CT)

Designated Pilot Examiner (DPE)

Federal Aviation Administration (FAA)

Fixed Base Operator (FBO)

Instrument Flight Rules (IFR)

Institution of Higher Learning (IHL)

Multi-engine Instructor (MEI)

Organization of Black Airline Pilots (OBAP)

Science, Technical, Engineering, Mathematics (STEM)

Social Cognitive Career Theory (SCCT)

Social Cognitive Theory (SCT)

Underrepresented Minority (URM)

Underrepresented Students (URS)

Unmanned Aerial Systems (UAS)

Visual Flight Rules (VFR)

Women in Aviation International (WAI)

CHAPTER ONE: INTRODUCTION

Overview

It was the first day of the semester, and students were coming into the classroom. They entered, looked around, and then chose a place to sit. There were forty-two students enrolled in the Aviation Leadership course that semester, and all of the students in the course were in an aviation degree program. The classroom had seven tables with six chairs at each table. I told the students to sit wherever they liked, and whatever group they chose to sit with would be their group for the entire semester. There were five female students in the course. The racial makeup of the class was predominantly White. When everyone was settled, I noted that all five of the female students were sitting at one table, in similar fashion to what occurred the previous semester. The three African American students sat among several groups. This variation of groupings of racial minority students was similar to what I have witnessed in the past. Similarly, the percentage of females and racial minorities in the class was similar to what I have experienced in past classes. Racial minorities and females are underrepresented groups in collegiate aviation programs and in most professional aviation careers (Ison, Herron, & Weiland, 2016). As I taught the students, I wondered if and how their learning and overall social experience differed from those in the majority Caucasian American male group. Additionally, I questioned how these underrepresented students receive me as the teacher. I also wondered how they felt about being a minority member of the program in terms of gender or race.

Underrepresentation in a group or societal setting can take many forms, visible and invisible. When we speak of underrepresentation, we normally mean that the number of people in a particular setting is significantly less than their number in the general population (Orom, Semalulu, & Underwood, 2013). Those who are in the significant minority may operate in a

different context and from a lower position of influence than those who by nature of being in the majority hold more power and status (Turner, 2002; West, 2015). The experiences underrepresented people face can be quite different and may be the result of cultural and societal norms, and economic, political and social power structures (Turner, 2002). The focus of this study was on collegiate aviation students who are classified as underrepresented by gender and/or by racial background in a career field dominated by White males. Within the discipline of aviation, this study looked specifically at students enrolled in professional pilot baccalaureate degree programs.

Literature on the lived experiences of underrepresented female and racial minority students in collegiate aviation programs is quite thin. Historically, the aviation industry is dominated by White males; therefore, the education and training systems primarily and historically have come from White male educators and instructors (Ison et al., 2016). Women and racial minorities in such programs may find themselves isolated in an environment that has a White male collective identity. Although the literature contains numerous anecdotal stories and a few studies regarding the experiences of women and racial minorities, there is a lack of knowledge about what it means from a personal inner consciousness frame of reference to be a female or a racial minority collegiate aviation student in the historically and culturally White male collegiate aviation environment. In other words, there is very little literature or knowledge of the lived experience of being an underrepresented collegiate professional pilot student. As a result, educators and career counselors may not have adequate knowledge regarding how underrepresented students in professional pilot degree programs cope in their learning environment or how that environment affects their career interest and development.

The purpose of this transcendental phenomenological study was to explore what it means to be an underrepresented student in a collegiate professional pilot degree program. A qualitative investigation focused on underrepresented students provided the means to enable a discernment of “new, characteristic compositions and distinctions” (Husserl, 1965, p. 157). For the purpose of this study, an underrepresented student in a collegiate professional pilot degree program is a student from African American, Latino, and Native American heritages and female students of any racial background (Covarrubias & Fryberg, 2014; Ison et al., 2016; Syed, Goza, Chemers, & Zurbriggen, 2012). The topic of underrepresented students in a collegiate professional pilot degree program has meaning and significance derived from the social, economic, and political history of race and gender as they pertain to academic and career goals (Moustakas, 1994).

This qualitative study utilized a transcendental phenomenological design to facilitate investigation and exploration of a particular phenomenon experienced by several individuals for the purpose of constructing a comprehensive and rich description, i.e. the essence of the experience (Moustakas, 1994). The study was transcendental in nature for the purpose of gaining fresh perspectives, as if looked at for the first time (Moustakas, 1994). My interest in this topic is connected to my passion for aviation and my strong desire to work for social justice and opportunity for all. Additionally, I have a desire to bring awareness of those who experienced the phenomenon of being an underrepresented student in a collegiate professional pilot degree program in the hope that this awareness may facilitate efforts to change the current demographics of the aviation field.

To facilitate further explanation of the issue, the introductory chapter discusses relevant information for, and key aspects of, the proposed research study. The subsections in this chapter

include a background of the problem of underrepresented persons in aviation, an explanation of the situation to self, the problem statement guiding the research, the purpose statement, the significance of the study, and the research questions.

Background

Historical Overview

Aviation has historically been a White male dominated field from its beginnings to the present time. A critical look at the history of aviation in the United States revealed why there are so few women and racial minority professional pilots. Throughout the history of aviation, professional pilots in the airline, corporate, military and other areas of aviation have been predominantly White males (Ison et al., 2016; McCarthy, Budd, & Ison, 2015). The industry generally excluded women from being pilots due to cultural and societal norms that promoted the idea that piloting aircraft is a male occupation. Barriers faced by racial minorities have historically included prejudicial stereotypes, segregation, and socioeconomic factors (Evans & Feagin, 2012).

Like many professional occupations, the field of aviation began as a White male dominated industry and it remains so today (Evans & Feagin, 2012; Ison et al., 2016). Until the 1960s and 1970s, women and African Americans could not become professional airline pilots, and since that time, prejudices and biases have continued to affect their entry and career development (Evans & Moore, 2015; Evans & Feagin, 2012; McCarthy et al., 2015). Participation of racial minorities and women in professional aviation careers continues to lag most other technical disciplines in relative population (Ison et al., 2016). Lack of women in aviation career fields such as aircraft maintenance may be due to lack of knowledge that such careers are available and accessible to women (Clark, Newcomer, & Jones, 2015). Despite

efforts over many decades to increase participation, racial minorities and women are more underrepresented in the professional pilot career field than they are in other aviation careers such as aircraft maintenance, flight attendant, and operations (Evans & Moore, 2015; Germain, Herzog, & Hamilton, 2012; Harl & Roberts, 2011; Ison et al., 2016; McCarthy et al., 2015). Overall, women represent an underserved and little understood group in aviation (Germain et al., 2012). Black aviators are still dealing with legacy racial issues that can affect their well-being in their careers (Evan & Feagin, 2012).

Women and racial minorities have only gradually come into professional aviation since its beginnings. Specifically, women entered military flying in World War II, but they were limited to segregated and non-combat piloting roles, primarily in the well-known Women's Airforce Service Pilots (Bednarek & Bednarek, 2003; Luedtke, 2011). Similarly, Black pilots coming into the military in World War II were primarily relegated to the famous 332nd Fighter Group of the US Army Air Corps, known as the Tuskegee Airmen, which was the first unit of Black military aviators in the U.S. Armed Forces (Vaughan, 2016). It was not until 1973 that a scheduled airline hired a female pilot. 1973 was also the year that the U.S. military first began selecting and training female military pilots (Luedtke, 2011). An airline company hired the first Black pilot in 1964, which was nine years after one Black pilot took his case to court, with the final decision coming from the U.S. Supreme Court (Whitlock, 2009).

Gender biases in aviation were firmly entrenched in the early years of the industry. For example, the airline "stewardess" designation was "synonymous with sensemaking cues such as glamour, low income, and women" (Mills, 2002, p. 127). On the other hand, the airline pilot was "identified with competence, high income and men" (Mills, 2002, p. 127). Four types of barriers inhibit women in aviation: (a) the culture; (b) lack of role models, networks, and mentors; (c)

flight schools not intentionally developing female pilots for higher roles; (d) and lack of self-efficacy (Germain et al., 2012). Historically, other barriers, particularly to black females have included white male dominance, racism, sexism, societal view, lack of support groups, and lack of available career information (Sulton, 2008). In addition, there has been a tendency for people in the lives of Black females to dissuade them from becoming pilots (Sulton, 2008).

The current demographic picture in the aviation industry still does not reflect the U.S. population and society. In 2013, there were 617,128 certificated pilots of all races and origins, but only 2% identified themselves as African American (Federal Aviation Administration, 2017). More recently, Federal Aviation Administration (2017) statistics show that 4.2% of airline transport pilot (ATP) certificate holders are women, 2.7% are Black or African American, 2.5% are Asian, and 5% are Hispanic or Latino. In 2012, the U.S. Bureau of Labor Statistics (BLS) estimated about 93% of airline pilots and flight engineers were White, 2.7% were Black or African-American, 2.5% were Asian, and 5% were Hispanic or Latino (Bureau of Labor Statistics, 2013). Since 2012, the demographic situation has not changed much. In 2018, BLS estimates revealed that of the 119,00 employed aircraft pilots and engineers, 92.4% were White; 9.0% were women; 2.7% were Black or African American; 4.2% were Asian, and 6.8% were Hispanic or Latino ethnicity (Bureau of Labor Statistics, 2018).

Society at Large

Convergence of an aging aviation workforce and the decline of student knowledge, skills and interest in science, technology, engineering, and mathematics (STEM) subjects precipitated a crisis in STEM fields including the aviation and aerospace industry (Brown, Kutz, & Blitz, 2007; Xue & Larson, 2015, May). Various government and non-governmental agencies documented serious concerns about the decline of U.S. economic strength if the issue of racial disparity in

STEM fields is not solved (Chang, Sharkness, Hurtado, & Newman, 2014). Specifically, the departure of older pilots due to retirement and the current level of growth in the airline industry have created a situation in which there is an insufficient number of pilots to meet the needs of the industry (U.S. Government Accountability Office, 2014b). A perception exists that fewer people are interested in aviation, which in addition to pilots will experience a growing need for new aircraft maintenance technicians worldwide (U.S. Government Accountability Office, 2014a). A 2018 pilot and technician outlook indicated a need for 790,000 new commercial, business, and helicopter pilots and over 754,000 new aircraft technicians over the next 20 years (Pilot and Technician Outlook 2018-2037, 2018), which is up from 558,000 commercial airline pilots and 609,000 aircraft technicians forecasted in the 2015 outlook report (2015 Pilot and Technician Outlook, 2015).

Women and racial minorities are underrepresented in many science, technology, engineering, and mathematics (STEM) fields, including most aviation careers (Fouad & Santana, 2017; Ison et al., 2016). Underrepresentation in academic and career settings is the result of many societal factors including barriers and lack of positive supports. Not only do women feel they have to prove themselves to be accepted by men in aviation, men may also be less accepting of women who perform better than them (Turney et al., 2002; McCarthy et al., 2015). To succeed in a male-dominated aviation field, women must develop higher self-efficacy and self-confidence than would be needed in other careers (Germain et al., 2012). Research revealed that teacher and family member support influenced performance and academic confidence of women and racial minorities in STEM fields (Fouad & Santana, 2017; Garriott et al., 2014; Turney et al., 2002). Research utilizing a social cognitive career theory model presents evidence that parental support can have direct and indirect influences on the social-cognitive factor leading to career

interest (Garriott et al., 2014; Isik, 2013). In addition to societal and cultural barriers, another major barrier to a young person cultivating a desire for a professional pilot career is the high cost of training in many of the specific areas (Olson, 2008).

Despite the growing need for professional pilots in the aviation industry, women and racial minorities remain an underrepresented population (Ison et al., 2016; Mitchell, Kristovics, & Vermeulen, 2006). At the undergraduate collegiate level, 27.3% of students in professional pilot programs are non-White, and less than 9% are female (Ison et al., 2016). The most recent study of the composition of faculty and flight instructors in collegiate aviation revealed that the vast majority were White males (Ison, 2008). Specifically, results showed that of 60 baccalaureate collegiate aviation programs in the U.S., only 10.1% of the faculty members were female, and of the leadership positions in those programs, only 10% were female (Ison, 2008).

People desiring a career as a professional pilot can receive their aviation education and training at institutions of higher learning (IHL) that offer professional pilot degree programs. The majority of graduates begin their professional careers as flight instructors, and then move to become airline and corporate pilots. Some graduates become military pilots, where, not surprisingly, women and racial minorities are very much underrepresented (Haring, 2013). After graduation from a collegiate professional pilot, some students go on to work in myriad aviation businesses, government organizations, and non-governmental organizations. Despite the fact that there was no doctorate degree in the specific field of aviation was available prior to 2008, recently, the professional field of aviation has been coming into its own in terms of professional organizations, advanced degrees, and university level research (Ison, 2008). Currently, there are almost 100 two-year and four-year colleges and universities with aviation degree programs and are listed as members of the University Aviation Association (University Aviation Association,

2017). The Aviation Accreditation Board International accredited aviation degree programs at 38 schools (Accredited Programs, 2019). Several universities now have doctorate programs in aeronautics, aviation, and other aviation related fields of study.

The aviation career field is difficult to categorize in terms of all professional careers and in terms of academic disciplines within Institutions of Higher Learning (IHL). The Bureau of Labor Statistics classifies aviation careers within the field of transportation (Bureau of Labor Statistics, 2016b). Although four-year aviation baccalaureate degree programs have been in existence since the 1920s, the Department of Education does not classify aviation as a specific field of study at the undergraduate level. Instead, it classifies it as a “transportation” discipline (Digest of Education Statistics, 2017). In 2012, the U.S. Department of Homeland Security (2012, May 11) added aeronautics and aviation to its list of STEM degrees. The literature review revealed that many professional aviators and aviation educators consider aviation as a STEM (science, technology, engineering, and mathematics) discipline and field of study. As one significant example of aviation being included as a STEM discipline, the Aircraft Owner and Pilot Association is the leader in a national high school aviation program to develop aviation STEM programs and curriculum in high schools (About the High School Initiative, 2017). Even some universities seem to have difficulty in placing aviation in a consistent category. It is due to these reasons that obtaining comprehensive and accurate data regarding collegiate aviation programs can be challenging.

Theoretical Contexts

Social inequality can manifest itself in many forms. For example, in the case of career aspiration, social inequality may be in the form of barriers that inhibit individuals from realizing their potential to achieve self-development in careers the general populace perceives as being

suited only for certain groups (Brown & Lent, 2013). Due to this type of cultural perception and bias, young people may face a type of social injustice that keeps them out of careers that may be good for them and good for society as a whole. It is important to know the reason why racial minority and female members of society are underrepresented in certain academic pursuits and careers. To address social inequality, we must first know the experiences of those who are in the minority and are underrepresented. Knowing the lived experience of underrepresented aviation students may help in knowing why they continue to be underrepresented and may help in providing voice and opportunity to underrepresented groups in the aviation career field.

A theoretical construct that is concerned with the abolition of social injustice as it relates to individual self-development is critical theory (CT) (Horkheimer, 1972). CT provides a means to evaluate and judge the social practices, attitudes and personality structures that form certain living conditions and human relations in a society, particularly in a modern capitalist society (Honneth, 2009). A focus of critical theory is the investigation of how people shape their beliefs and understandings of the world through the lens of societal injustice and subjugation (Patton, 2002). The purpose of this investigation was to build knowledge of the lived experience of underrepresented college students in aviation, which may then be used to analyze the current state of affairs and to work for societal change (Patton, 2002). CT can provide a basis for constructing knowledge of the lived experiences of underrepresented minorities in collegiate aviation. CT is also a construct that can define key issues for why women and racial minority members of society are underrepresented in the field.

Social cognitive career theory (SCCT) provides a theoretical framework for describing and understanding peoples' behaviors in pursuit of academic and occupational interests and goals (Brown & Lent, 2013). SCCT looks at the sociocultural context of career development and how

race, culture, and gender may affect career self-efficacy beliefs, interests, goals, and outcome expectations (Brown & Lent, 2013; Gushue & Whitson, 2006; Inda, Rodriguez, & Pena, 2013; Tang, Pan, & Newmeyer, 2008). SCCT models are useful in research to study academic adjustment, persistence, and satisfaction among underrepresented engineering students (Chang et al., 2014; Lee, Flores, Navarro, & Kanagui-Munoz, 2015; Lent et al., 2013; Lent et al., 2015; Lent et al., 2016; Navarro, Flores, Lee, & Gonzalez, 2014). SCCT also evaluates work as a basis for developing individual identity, self-esteem and self-actualization (Brown & Lent, 2013). Regarding career goal attainment, SCCT can help to describe and form the context of the lived experience of underrepresented people who are working toward a career in a field that is predominantly filled with White males.

A key element of SCCT is self-efficacy, which is a term used to describe people's confidence in their own capacity to achieve a goal (Litrico & Choi, 2013). Sources of a person's self-efficacy are varied, with a major source being those who have influence in a person's life such as family members, teachers, school counselors, peers, and others (Litrico & Choi, 2013). Self-efficacy can have a major impact on a young person's career decisions (Chung, 2002). SCCT, which was derived from Albert Bandura's social cognitive theory (SCT), helps explain how self-efficacy influences career decisions and the educational and career development of youth (Chung, 2002; Gushue & Whitson, 2006; Hayes, Huey, Hull, & Saxon, 2012).

Regarding aviation as a career pursuit, there is a lack of research on women and racial minority groups entering and working in the aviation industry (Ison, 2009; Ison, 2010; Ison et al., 2016). The majority of the minimal number of studies on women in aviation are concerned with demographics and trends, and some look at perceived barriers. Very few studies exist that address racial minorities in professional aviation. The focus of this study was to capture the

lived experiences of women and racial minority students who are engaged in professional aviation education and training at a college or university. There is a gap in the literature regarding the lived experience of underrepresented undergraduate students who live and study in a predominantly White male collegiate professional pilot education environment as they prepare to enter a predominantly White male aviation industry.

Situation to Self

The majority of my aviation experience was in the military as a pilot. In recent years, I serve as a teacher and administrator at a doctoral university with an aviation baccalaureate degree program. During my time as a military pilot, I participated in a variety of teaching and learning environments and contexts in the United States and in several other countries. I taught flight theory and practice as both a flight instructor and academic instructor. Throughout my military career, I held leadership roles supervising the training and education of professional military aviators. As a professor and administrator in a university, I taught various aeronautics degree program courses, and I led the development and improvement of program curriculum and instruction methodologies. I hold a sincere desire to see an increase in the number of women and racial minorities in aviation, particularly as professional pilots, and also to help them achieve education and career success. I am oriented to this particular aviation program phenomenon as an educator and an advocate for social justice, fairness and equality.

Throughout my military flying career, there were very few female pilots and pilots of racial minority backgrounds in each of my assigned units. When I attended my initial military flight training, women had only recently been allowed to pilot military aircraft. One of my first military flight instructors was one of the first female military pilots. About halfway through my military flying career, women began training in combat aircraft. During my time in the military,

I served in and commanded an operational fighter squadron with female pilots. Despite the allowance for women to fly combat aircraft, they were clearly in the minority. Currently, a typical military flying squadron still has very few female pilots or none at all.

Gaining knowledge and understanding of the personal beliefs and convictions of people is a necessary aspect of effective education and leadership and helps ensure equal treatment for all. To truly know and understand individuals on a relational level, it is often necessary to set aside personal beliefs and convictions. Every person has their own constructed reality formed in their inner consciousness as influenced by myriad physical, cognitive, and social factors (Patton, 2002). Moustakas (1994) said that knowledge of all objects of reality forms subjectively in the consciousness. What is perceived reality for one person's experience may not be the same reality for another person's experience. Patton (2002) describes constructivism as a philosophy that distinguishes the natural world from the world of human consciousness. A person's constructed reality is very real to that person, and the person's behaviors tend to reflect that constructed reality (Patton, 2002). Husserl (1965, p. 154) said, "Our envioning world is a spiritual structure in us and in our historical life." I will approach this study of experiential meaning with a social constructivist viewpoint along with a transformative framework for the purpose of constructing a new and fresh description of lived experiences and for the goal of giving voice to and influencing societal change for underrepresented persons in the aviation field (Creswell, 2013; Patton, 2002).

My ontological assumption is that participants in this study will articulate different education experiences in a professional pilot degree program based on personal perceptions of their own constructed and lived realities. There is an assumption that each participant will have a formed personal identity that is the result of their own personal physical characteristics, their

background, culture and experiences and how those things relate to the natural reality of their environment (Honneth, 1991). People project their inner consciousness onto the external world gaining a continuous accumulation of experiences that create their perceived reality of the world (Honneth, 1991). In the conduct of this study, interactions with study participants revealed individual expressions of their perceived reality, or what is real for each of them in their individual academic experiences. Our senses interpret facts presented to us through the historical character of the object perceived and through the historical character of the perceiving organ (Horkheimer, 1972). Although people possess individual characteristics they are also products of their social society, environment, and history (Frega, 2014). Each participant brings individual backgrounds, personalities, and experiences into the discussions, which adds to descriptions of meaning of their experiences. The intent of this study was to report the multiple perspectives and realities of the participants and to discover common meaning themes among their stories (Creswell, 2013).

My epistemological desire is to generate new knowledge concerning the lived experience of an underrepresented student in a collegiate aviation program. I want to raise awareness and make known the experience of minority groups in aviation to those who are the established majority (Moustakas, 1994; Patton, 2002). From the standpoint of a social critical theory, the researcher uses a philosophical basis to conduct a reflective search for knowledge (Honneth, 1991). The reflective search for knowledge represents a return to the ancient ideal of contemplative knowledge promoted by philosopher Edmund Husserl who sought to depart from a positivistic scientific method and to renew a method of transcendental self-reflection, or phenomenology, for the purpose of finding meaning for the practical life (Honneth, 1991). Therefore, scientific preconditions must be set aside, and the researcher must contemplatively

reflect on what is observed and heard. Honneth (2009) asserts that for a critical theory analysis, generalizable knowledge emerges only from “improved solutions to problems and against the opposing groups in power” (p. 31). Obtaining a rich reflective knowledge of the experience of underrepresented students requires speaking directly with them and listening to their personal stories (Creswell, 2013). My role as the researcher was to ask questions that solicit meaning stories and statements, and to create descriptions of the experiences. From a knowledge seeking perspective, it is important to gain the trust of the participants and allow them to freely speak about their experiences. It was also necessary to continuously practice deep reflection to bracket my own preconceived beliefs and to formulate meaning of what the participants say.

The question of underrepresented persons in aviation is value-laden in terms of the persisting nature of a predominantly White male profession in today’s society. I personally question the persistent biases in the industry, and I am biased in my belief that the demographic gender and racial make-up of the aviation workforce should reflect society at large. The axiological assumption in this study is that biases will be revealed through participant statements and stories, and that researcher bias regarding a desire for social justice will be revealed in the construction of the phenomenon’s descriptions (Creswell, 2013).

Problem Statement

Aviation is a male-dominated career that has remained consistent in its underrepresentation of women and racial minorities (Germain et al., 2012; Ison et al., 2016). The reasons for persistent female and racial minority underrepresentation in aviation are not well known or understood, and research on women and racial minorities in aviation is lacking (Germain et al., 2012; Ison et al., 2016; McCarthy et al., 2015). The few recent studies on women and racial minorities in aviation cite other studies that are for the most part greater than

10 years old. Only one study in recent years has addressed the issue of the underrepresentation of African Americans in corporate business flying, and very few studies have investigated the experiences of racial minorities in the professional pilot career field overall (Harl & Roberts, 2011). Of the recent studies on the experiences of racial minorities, Evans and Feagin (2012) found ongoing racism in the airline industry, which makes it a less desirable occupation for African Americans. In a qualitative study on the experience of African American business pilots, a common stated belief from childhood is that aviation is a White profession (Harl & Roberts, 2011). Walton and Politano (2014) characterize aviation as being a non-gender-neutral occupation. They found that sexism still exists among male pilots, but the continued presence of sexism is not a factor in increased levels of depression, stress, or anxiety among female pilots (Walton & Politano, 2014).

Previous research on underrepresented minorities in STEM fields has focused on the pursuit of STEM careers and on persistence rates once in the career fields. African American males experience multiple education barriers to career development that affect opportunities to successfully enter working professions (Strayhorn, 2009; Ward, Strambler, & Linke, 2013). African American men make up 8.6% of bachelor degrees conferred to males by postsecondary institutions, and the number for African American females is 11.6% (National Center for Education Statistics, 2015). African American and Latino science and engineering undergraduates are less likely to persist in completing their degrees than are White and Asian American undergraduate students (Chang et al., 2014). Of the undergraduate engineering degrees conferred in 2015, African American males earned 3.8% and African American females earned 5% of the degrees (National Center for Education Statistics, 2015).

There have been almost no studies that focus solely on the lived experience of being an underrepresented student in a collegiate aviation program, although there are some qualitative studies that investigate the experience of undergraduates in other STEM fields (Clark et al., 2015; Diefenbeck, Michalec, & Alexander, 2016; Jaeger, Haley, Ampaw, & Levin, 2013; Miller et al., 2015). An empirical study of the phenomenon of being an underrepresented collegiate professional pilot student is needed to identify possible factors that sustain the status quo (Frega, 2014). A qualitative approach to the issue of racial minorities and women in a collegiate aviation program provides an effective means to discover the essence of what it means to be an underrepresented student in such programs (Creswell, 2013; Husserl, 1965; Moustakas, 1994). Underrepresented students as co-researchers serve well to understand their thoughts, needs, and desires as they work to achieve their dreams and desires of becoming professional pilots in a primarily White male industry (Moustakas, 1994). With a good, rich knowledge and understanding of their experiences, administrators and teachers may be able to employ interventions that will change attitudes and create learning environments that help in the success of the underrepresented aviation student (Creswell, 2013). The problem for this study is the lack of knowledge of what it means to be an underrepresented student in a collegiate professional pilot degree program.

Purpose Statement

The purpose of this transcendental phenomenological study was to explore what it means to be an underrepresented student in a collegiate professional pilot degree program. Using phenomenological research methods of interviews, focus groups, questionnaires and journal reflections, 15 students in collegiate professional pilot degree programs at three separate universities were participants for the purpose of constructing a thick, rich description of what it

means to be an underrepresented collegiate professional pilot student. For the purpose of the study, an underrepresented student in a collegiate aviation program is a racial minority student from African, Latino, or Native American heritages, or a female student of any racial or ethnic background who is currently enrolled in a professional pilot baccalaureate degree program at a four-year college or university (Chang et al., 2014; Covarrubias & Fryberg, 2015; Ison et al., 2016; Lichtenstein, Chen, Smith, & Maldonado, 2014; MacPhee, Farro, & Canetto, 2013; Syed et al., 2012). The theories guiding this study are social cognitive career theory (SCCT) and critical theory (CT). SCCT provides a framework for analyzing how an individual's cognitive-person attributes, physical characteristics of gender and race, and the contextual environment interact to influence academic and career interest, choice, and performance (Lent, Brown, & Hackett, 2000; Lent & Brown, 2013). CT provides a social backdrop for understanding how individuals from minority and low power groups relate in struggle and conflict with other groups within a society to achieve self-actualization and control of their own destinies (Horkheimer, 1972).

Significance of the Study

Practical Significance

Knowing and understanding the meaning that underrepresented students hold while engaged in a professional pilot degree program may help in facilitating underrepresented student success and preparation for a satisfying and rewarding career in the aviation industry, and may also help in devising strategies for changing the demographic landscape of the aviation industry for pilots and other aviation professionals. In general, curricula for STEM fields are not in congruence with the personal and social needs of underrepresented students (Jaeger et al., 2013). Educators may use knowledge of the lived experience of underrepresented students to design

differentiated curriculum and instruction strategies and methodologies that meet their particular needs. If curriculum and instruction design turns out to be a factor, such improvements may serve to meet the needs of increasingly diverse workforce. This study has value to the participants because it may help them to more fully understand their personal experience, identity and roles as they work to become professional aviators. They may then be able to help other women and racial minority youth to enter and succeed in an aviation career.

Empirical Significance

My desire for the research study is to contribute to the very limited body of literature regarding the lived experience of an underrepresented student in a collegiate professional pilot degree program. The primary goal was to create a rich description of the lived experience of underrepresented students who journey through a collegiate professional pilot degree program to become a professional pilot. The focus of the study was to gain knowledge of the phenomenon directly from those who have lived the experience and to provide a voice regarding a significant area of their lives (van Manen, 1990). The nature of the research study design provided data that may be valuable to many varied stakeholders in aviation education and training and in the professional aviation industry including educators, university and industry recruiters, school counselors and others. Research in this area may provide valuable insights to collegiate faculty and flight instructors for teaching and mentoring racial minority and female aviation students. Because the vast majority of faculty and instructors were trained and educated in environments majority populated by White males, there may not be an effective knowledge base or a sense of sensitivity for the needs and desires of racial minority and female aviation students. Van Manen (1990) explains that theories and models of learning may not be enough to inform the most effective methods of teaching in all situations. Unless we know and understand the lived

experience of the students we are teaching, we cannot assume that the teaching methodologies are responsive to their particular needs and development (van Manen, 1990).

Although literature exists concerning underrepresented persons in various STEM fields, the literature concerning the field of aviation is generally limited to surveys of current demographics and trends (Ison, 2009; Ison, 2010; Ison et al., 2016), barriers that women and racial minorities face, and potential intervention measures and programs (Germain et al., 2012). There is very little research and literature that relate to the lived experiences of women and racial minority aviation students in the primarily White male aviation education environment (Ison et al., 2016; McCarthy et al., 2015). There is even less literature regarding African Americans (Harl & Roberts, 2011), Native Americans (Sloan, 2006), and Hispanic/Latino Americans in aviation. Therefore, the purpose of this research study was to fill the gaps in literature by providing qualitative data that describes the lived experiences of underrepresented students in collegiate professional pilot programs.

Theoretical Significance

The study has historical and theoretical significance because it directly addresses issues of power, justice and oppression from an in-depth critical view (Seidman, 2013). An investigation and critical look using a phenomenological approach can be a bridge from theory to knowledge to action for the benefit of the people who experience the phenomenon (van Manen, 1990). This study is unique in that it investigates the experience of the collegiate aviation student using a critical theory and a social cognitive career theory framework. This study extends the two theories to their application in the aviation career field. Understanding the underrepresented student experience in aviation education and training may also help change biases and perceptions of women and racial minority student pilots in the aviation industry thus

advancing social justice. Knowing the underrepresented student experience in aviation education and training may also help in encouraging, supporting and recruiting racial minority and female high school students to pursue a career in aviation. Knowing how to support underrepresented student success in aviation could help increase the number of minority and female pilots in the industry. Capturing the experiences of underrepresented aviation students will give voice to these students (Creswell, 2013).

Research Questions

Phenomenological research questions guide an organized, disciplined, and systematic study for the purpose of deriving personal autobiographical meaning and value from the participants and to construct social meanings and significance (Moustakas, 1994). Because we are interested in the phenomenal world of individual experience, the questions should have personal meaning and significance for the researcher and for the participants (Giorgi, 2009; Moustakas, 1994). In my case, I have a passion for helping people to succeed in the aviation career field, and I have developed a passion for bringing aviation to those who are underrepresented in the field. In pursuing a passion in a phenomenological inquiry, there must be a deep understanding of the meaning of the object of the passion for the purpose of discovering the essence of the phenomenon being investigated. The questions must be structured to guide an investigation that seeks to dig into the situations in which the participants are living (Giorgi, 2009). Moustakas (1994, p. 105) describes the characteristics of the human research question:

1. It seeks to reveal more fully the essences and meanings of human experience;
2. It seeks to uncover the qualitative rather than the quantitative factors in behavior and experience;

3. It engages the total self of the research participant, and sustains personal and passionate involvement;
4. It does not seek to predict or to determine causal relationships; and
5. It is illuminated through careful, comprehensive descriptions, vivid and accurate renderings of the experience, rather than measurements, ratings, or scores.

The following is the central research question with four sub-questions. The questions are directly related to each of the study's theoretical frameworks.

Central Question

What does it mean to be an underrepresented student in a collegiate professional pilot degree program?

The research participants live in what Giorgi (2009) calls the lifeworld, but due to their individual characteristics, they experience the lifeworld in a phenomenological way that is unique to their situation. By investigating meaning, the researcher intends to discern the relationship the lifeworld has with the phenomenon being investigated (Giorgi, 2009). By investigating what it means to be an underrepresented student in a collegiate professional pilot degree program, the researcher hopes to discover and describe the particular experience that is relevant only to those experiencing the phenomenon and is not necessarily interested in objective details of being that student in the quantitative sense (Giorgi, 2009). Each person experiences the particular lifeworld in its context, which is why it is important to consider social factors and elements while seeking to formulate a description of the essence of the phenomenon (Giorgi, 2009). The central research question stated here has social meaning due to the gendered and racial history and relationships encountered in careers traditionally and structurally dominated by White males.

The central research question contains the purpose of the study, which was to describe what it means in a psychological sense to be a person who experiences the phenomenon. The central research question also delineates the subjects of the investigation and the setting. A theoretical framework derived from two theories guided this study: social cognitive career theory (SCCT) and critical theory (CT). SCCT guides the first three sub-questions with its theoretical focus on the manner in which cognitive-person attributes interact with personal characteristics and the contextual environment in shaping academic and career development (Brown & Lent, 2013). The fourth sub-question draws from CT with its interest in social justice and the interactions of groups of people within a society.

Sub-questions

1. What influence do cognitive-person attributes have on meaning that is experienced and described by the underrepresented aviation student?

In SCCT, cognitive-person attributes are the three variables of self-efficacy beliefs, outcome expectations, and personal goals (Brown & Lent, 2013). SCCT provides a model for how cognitive-person attributes interact to shape education and career development behavior (Brown & Lent, 2013). SCCT recognizes that psychological and social/cultural effects of person characteristics and the environment also influence the process and the beliefs of the person (Brown & Lent, 2013). This sub-question assisted in constructing a description of how the participants' self-efficacy beliefs, outcome expectations, and personal goals affect meaning within the framework of their lived experience.

2. What influence do personal characteristics of gender and race have on meaning that is experienced and described by underrepresented aviation student?

SCCT does not have the view that gender and race characteristics in themselves influence education and career interest, performance, and satisfaction, but that the psychological and social aspects of gender and race within a society may affect access to opportunities as well as self-efficacy beliefs and outcome expectations (Brown & Lent, 2013). Social cognitive theory (SCT), which is the foundation of SCCT, posits that people, behaviors and environments influence each other (Brown & Lent, 2013). Many empirical studies have investigated the influence that personal characteristics of gender and race have on education and career interest, performance and development. The social/cultural influence of gender and race can impact self-efficacy beliefs and outcome expectations positively and negatively depending on the particular academic and career domain and on environmental contexts (Brown & Lent, 2013). In many instances, the social-cognitive effects of gender and race are not readily seen or perceived, as they tend to operate in the background or subconsciously (Brown & Lent, 2013). This sub-question assisted in learning how participants perceive their social situation as influenced by their gender and/or race.

3. What influence does the contextual environment have on meaning that is experienced and described by underrepresented aviation student?

The environment covers many contextual aspects of education and career performance and development, which can influence the overall personal experience. SCCT makes the point that “people do not choose careers unilaterally; environments also choose people” (Brown & Lent, 2013, p. 123). The environment from an academic and career development perspective can include family social/cultural aspects and supports, societal biases and prejudices, and economic situations (Brown & Lent, 2013). In choosing academic and career pursuits, it may be that people are simply more comfortable interacting with people who look and think alike, and that

some environments are not open or friendly to some groups of people (Brown & Lent, 2013). Some people choose career pursuits simply because of the situation they are in, which includes job availability, financial need, or family expectations, although they may not be particularly interested in those pursuits (Brown & Lent, 2013). An assumption in this study is that the participants had the freedom and means to choose to pursue a career as a professional pilot, and they did so even though they know that they would be underrepresented based on gender and/or race. This sub-question assisted in learning how participants perceive their learning environment as influenced by their gender and/or race. The SCCT theoretical framework provides a means for understanding the academic and career behaviors of people with diverse characteristics including race and gender, culture, socioeconomic status, age, and disability status (Brown & Lent, 2013). SCCT also has a social justice goal in understanding and providing solutions to issues of career development of people who experience social/cultural, political and/or economic barriers (Brown & Lent, 2013).

4. What meaning do underrepresented aviation students ascribe to their experience in terms of social justice and equality as it relates to their academic and career development?

The second theoretical framework guiding this study is critical theory (CT), which also has a social justice goal of understanding and shaping how underprivileged and oppressed groups achieve self-determination and equality in academic and career pursuits. The purpose of this sub-question from a CT point of view was to investigate how the participants view their academic and career development within the context of an industry historically and culturally dominated by White males. A modern view of CT is that there are societal pathologies that are rooted in deficient rationalities of human progress and ethics (Honneth, 2009). Society is negatively affected by these pathologies, and the only way a society may be successful in terms

of social justice for everyone is to maintain a high standard of rationality (Honneth, 2009). If some groups in a society are unable to achieve self-actualization, it is due to pathologies that lead to unequal opportunities and acceptance (Honneth, 2009).

Definitions

1. *Academic self-efficacy* – “confidence in one’s ability to accomplish academic tasks” (MacPhee et al., 2013, p. 348)
2. *Bracketing* – the act of mentally removing one’s beliefs about the natural world to seek knowledge and understanding of the lived experiences of others (van Manen, 1990)
3. *Commercial air transport* – “an aircraft operation involving the transport of passengers, cargo, or mail for remuneration or hire” (International Civil Aviation Organization, 2009)
4. *Epoche* – the setting aside of prejudgments, biases, and preconceived ideas about things to allow “things, events, and people to enter anew into consciousness, and to look and see them again, as if for the first time” (Moustakas, 1994, p. 85).
5. *Essence* – that which makes something what it is in its truest sense and form; the very nature of something (van Manen, 1990)
6. *General aviation* – an aircraft operation other than a commercial air transport operation or an aerial work operation (International Civil Aviation Organization, 2009)
7. *Hermeneutics* – theory and practice of interpretation (van Manen, 1990).
8. *Isolation* – “the persistent sense of being physically present in a specific group, with little or no support or genuine camaraderie” (West, 2015, p. 115).
9. *Lifeworld* – as opposed to the world that is constructed in an individual’s consciousness, the lifeworld is “the common, everyday world into which we are born and live; the world all humans initially encounter, however diversified” (Giorgi, 2009, p. 10).

10. *Marginalization* – “the experience of having your ideas, experiences, beliefs, and contributions devalued, dismissed, and relegated to the periphery of the group’s conversations, decisions, and actions (West, 2015, p. 116).
11. *Phenomenology* – “the systematic attempt to uncover and describe the structures, the internal meaning structures, of lived experience” (van Manen, 1990, p. 10); “utilizing only the data available to consciousness—the appearance of objects” (Moustakas, 1994, p. 45).
12. *Transcendental* – “adhering to what can be discovered through reflection on subjective acts and their objective correlates” (Moustakas, 1994, p. 45).
13. *Underrepresentation* – in the context of this study, it is being a minority member of unequal numerical proportion (by culture, gender, and/or race in a group dominated by a majority culture, gender, and/or race) who share a common physical and/or structural environment, which fosters a number of social experiences possibly leading to marginalization and isolation (Turner, 2002; West 2015). It can be characterized “as both the physical experience of existing within a group where members of your cultural group are disproportionately fewer in number than individuals from other cultural groups present, and the psychological strain that is a consequence of this proportion” (West, 2015, p. 109).

Summary

The first chapter of this research study provided an overview of the literature describing issues regarding the underrepresentation of females and racial minorities in STEM education and careers, and it highlighted the lack of literature concerning the experiences of underrepresented persons in the aviation career field. The background section provided a historical overview of

the underrepresented people in aviation and in STEM fields and how the issue affects society-at-large. The background also identified the conceptual theories for the study and discussed how they are relevant to the investigation. The problem for this study is the lack of knowledge of what it means to be an underrepresented student in a collegiate professional pilot degree program. The purpose of this transcendental phenomenological study was to explore what it means to be an underrepresented student in a collegiate professional pilot degree program. The study has significance to the academic and career field of professional aviation in that it will provide awareness of the experience and inner consciousness of underrepresented students in professional pilot degree programs. The study will also inform professional aviation educators and practitioners about what it means to be an underrepresented person in the aviation career field. Knowledge of what it means to be an underrepresented student in a collegiate professional pilot degree program will inform the literature on aviation education and training, and it will provide a basis for promoting social justice and equality in professional careers. Chapter Two contains the literature review including the theoretical framework and related literature. Chapter Three explains the research design, methods of data collection and data analysis procedures.

CHAPTER TWO: LITERATURE REVIEW

Overview

The purpose of Chapter Two of this research study is to provide an explanation of the theoretical framework for the study and a review of relevant literature pertaining to the experiences of underrepresented students in collegiate professional pilot degree programs. Because there is very little literature regarding underrepresented aviation students in a collegiate setting, this literature review expands the examination to underrepresented persons in the context of other science, technology, engineering, and mathematics (STEM) fields (Chemers, Zurbriggen, Syed, Goza, & Bearman, 2011; Jackson, 2013; Strayhorn, 2015). Despite improvements over the last couple of decades, racial minorities and women majoring in many STEM disciplines in colleges and universities continue to be underrepresented (Ison et al., 2016), and many of the cognitive-person, physical characteristic and contextual environment issues that affect them are likewise applicable to the field of aviation. The theoretical framework for the study is grounded in Critical Theory (CT) and Social Cognitive Career Theory (SCCT).

The developers of CT used in this study are Max Horkheimer (1972) and Theodor Adorno (in Ingram, 1990; Honneth, 1991) who first developed their version of CT in the Frankfurt School in Germany beginning in the 1930s. The study also draws upon Jurgen Habermas (in Ingram, 1990; Honneth, 1991), Axel Honneth (1991, 2009, 2011) and Albrecht Wellmer (2014) who critiqued early versions of CT and who each continued to develop a critical theory they believed to be more practical for modern society. The CT framework in the context of this study provided a foundation and a structure for explaining the nature of the aviation industry that has remained overwhelmingly dominated by White males from its beginnings through the present time. The CT theoretical framework explained underrepresented and low

power individuals in relation to dominant and high-power individuals and groups and the relational conflicts that occur within particular settings of society and nature (Horkheimer, 1972). People's efficacy and freedom for self-determination are impacted by existing states of social injustice and by pathologies that tend to erode social cooperation in some spheres (Honneth, 2011).

The foundation for SCCT is Bandura's social cognitive theory (SCT), which portrays the reciprocal relationship of personal attributes, environmental contexts, and behavior interactions (Bandura, 1986; Lent, Brown, & Hackett, 1994; Brown & Lent, 2013). SCCT provides a comprehensive framework for understanding educational and occupational behavior and helps to explain, "how people (a) develop vocational interests; (b) make occupational choices; (c) achieve varying levels of career success and stability, and (d) experience satisfaction or well-being in the work environment" (Brown & Lent, 2013, p. 115). SCCT provides a basis for analyzing and understanding contextual sources and development of academic and career interests and choices, and how people achieve academic and career success (Lent, Brown, & Hackett, 1994). The SCCT framework assists in understanding how cognitive-person constructs of career self-efficacy, outcome expectations, and goals influence personal agency in an individual's career aspirations and development, as well as how physical attributes such as gender and race along with social, cultural, and environmental aspects influence career interests, choice and development (Lent, Brown, & Hackett, 2000).

The relevant literature section explains the various issues involved with underrepresented persons in STEM and more specifically in aviation education and career settings. The relevant literature section reviews historical and cultural contexts of women and racial minorities in aviation, underrepresented people in STEM fields, and underrepresented students in collegiate

aviation. The relevant literature review highlights a lack of research and literature pertaining to underrepresented students in collegiate aviation degree programs, demonstrating a critical gap and lack of knowledge of the lived experience of these students.

Theoretical Framework

Critical Theory

Social inequality has many forms. In the case of career aspiration, it may be in the form of real or perceived barriers that inhibit individuals from realizing their potential to achieve self-actualization in careers accessible to or suited for particular groups (Brown & Lent, 2013).

Discrimination of this nature is a type of social injustice in which some people are unable to enter careers that may be good for them and for society as a whole if they were in them. To promote equal working opportunities and self-fulfillment for members of society, it is useful to know the lived experiences of people who are underrepresented in certain careers. Critical theory (CT) is one construct that can assist in knowing and understanding the key issues.

Knowing the lived experience of those who choose to pursue a career as an underrepresented person may provide a previously unseen and introspective view into their struggles and triumphs and a better understanding of their situations and needs.

CT is a theoretical construct concerned with the abolition of social injustice as it relates to individual self-development (Horkheimer, 1972). It is a social theory oriented towards critiquing how an individual forms relationships and networks with other individuals and groups and how those relationships affect each individual's and group's abilities to achieve self-actualization (Horkheimer, 1972). CT originated out of the work of a group of social scientists and philosophers, most prominently Max Horkheimer (1972) and Theodor Adorno (in Ingram, 1990; Honneth, 1991), working at what became known as the Frankfurt School in Germany in

the 1930s. Under Horkheimer, CT began as a critique of human control of labor and production, which led to a methodology for analyzing and comprehending the construction and maintenance of social power (Honneth, 1991). Later, Jurgen Habermas recognized shortfalls in the practical application of the theories of Horkheimer and Adorno, and he further developed CT beyond simple labor and production to encompass a framework of continuous human social interaction (Honneth, 1991). The biggest difference between the classical CT of Horkheimer and the more modern version of Habermas is that Horkheimer predicted a physical struggle among distinct social groups for recognition and self-determination, and Habermas viewed social conflict as a process in which groups realize their moral and ethical claims through communicative social structures (Honneth, 1991).

Within the classical CT framework of the Frankfurt School, every person desires to have an equal chance at self-development, but due to the nature of human individualistic and capitalistic tendencies, a societal struggle will always be necessary to achieve political and economic equality for all at all times (Wellmer, 2014). In a free society, there will always exist a tension between capitalism and democracy when societal barriers prevent certain groups from achieving social wealth (Honneth, 1991; Wellmer, 2014). Honneth (2009) explained that the existing social relations found in capitalism inhibit some groups from achieving cognitive potential for self-actualization in practical life. The perceived interests and behaviors of others often tend to reflexively influence personal identity and behaviors in a given social construct. Such a perception can cause people to see themselves as people who have value in their own right and position (Honneth, 2009).

Human tendency to seek domination over others in pursuit of individual desires may prevent some groups of people from achieving self-determination (Wellmer, 2014). Oppression

and conflict occur when the dominant group is able to successfully impose their interests over the interests and aspirations of the many diverse groups in society (Frega, 2014). All people should have the opportunity to live free and in harmony with each other, but if individuals or groups are looking out for themselves and their own economic prosperity and political freedom, they will also tend to negatively affect the economic prosperity and political freedom of others who do not have equal access. It is only when the demands and aspirations of the less dominant groups are recognized and acknowledged that social change can begin to happen (Frega, 2014).

A CT analysis looks for ways to “reduce the tension between [the theorist’s] own insight and oppressed humanity in whose service he thinks” (Horkheimer, 1972, p. 221). Modern society exists as three spheres of action: the sphere of personal relationships, the sphere of the economic market, and the sphere of the political public, and a person cannot realize social freedom without realizing it to some extent in each of the three spheres (Honneth, 2011). In addition, each of those spheres cannot be analyzed without an accompanying set of moral rules (Honneth, 2011).

According to Horkheimer’s CT, the sphere of the economic market constitutes a person’s position in society relative to labor, or the so-called production process, wherein employers in a capitalist society compensate laborers for their work in the production of goods and services and make a profit from those goods and services (Atkinson, 2009). Specifically, workers sell their labor to an employer who makes a profit from that labor. Later, as more diverse markets emerged, monetary compensation and social status became associated with how valued the skills and credentials were, and social classes developed based on types of occupations, which enabled those with particular abilities and occupations to become more relevant to production and to exercise more authority and control over others (Atkinson, 2009). As particular social groups

gained more recognition in an increasingly diverse economy, work and class constructs began to include the impact of ethnicity and gender on societal relations (Atkinson, 2009).

A critical theorist takes the view that people in a capitalistic system who possess advantages from the status quo existent in the society are unlikely to want a change in the status quo that would benefit outside or underrepresented groups (Horkheimer, 1972). Because there will always be groups who lack recognition and opportunity, conflicts and struggles are bound to occur (Horkheimer, 1972). The existing societal or cultural status quo may be the inhibitor of a person's confidence to achieve personal desires, or it may represent a barrier against which particular groups seek to strive. Regarding societal injustices and conflicts among groups, Honneth (2009) said there is a "lack of social rationality that causes the pathology of capitalist society" (p. 24). In contrast to so-called traditional theories that look at problems and issues in a historical or scientific context, CT looks at a problem or issue as it relates to the ever-changing and dynamic social forces that act on human lives (Horkheimer, 1972). Vaughan (2016) captures the interplay between individuals and institutions saying, "sociologists view the world through a critical lens created by a research tradition that penetrates both the interactions of everyday life and the major societal institutions that are the centers of power, ideology, and wealth" (p. 33).

CT does not take the view that human behaviors are simple manifestations of personal determinations even if driven by local external forces; rather it considers "an incalculable social mechanism" (Horkheimer, 1972, p. 197). Every person has a unique identity and holds a personal inner knowledge about oneself and the world. A person's identity and self-knowledge reside in an inner consciousness that only that person knows, but which are not disconnected from influences of the person's social and physical environment (Husserl, 1965). A person's

self-knowledge is not a simple calculus, but it is a part of the larger society's concern for the human condition (Horkheimer, 1972). Society is not the neat result of an ingenious human plan, but rather the result of a continuous friction between the interactions of people groups that make up the different parts of society (Horkheimer, 1972).

A natural by-product of society's economy is that there will be those advantaged and those who are disadvantaged within that economy. Some parts of society will suffer unfair treatment and abuses, and there will be continuous action and efforts to eliminate those abuses (Horkheimer, 1972). For example, in the last few decades, the Black middle class realized a shift in political and economic power that provided more opportunities that had been previously denied by White employers (Evans & Feagin, 2012). Horkheimer (1972) believed that the system of production formed in capitalistic systems and advanced social structures eventually becomes an obstacle to human progress and leads to societal conflict and struggle. What naturally ensues is a continuous struggle for a society in which every person has equal opportunity for self-development, goal attainment, and recognition (Horkheimer, 1972). CT posits that people will always be distrustful of the accepted rules and norms of society as long as there are perceived injustices and economic disparity that keep groups of people from achieving their own form of self-actualization (Horkheimer, 1972). The central point of the matter is that critical thinkers consider things (work, values, productivity) as they are and not as they should be in an idealist sense, and at the same time, they do not settle for acceptance of the current order (Horkheimer, 1972). Therefore, critical action becomes opposition to the current societal forces and structures that are in play, and this opposition manifests in a tension that runs through a society.

CT highlights recognition of the complex, ever-changing situations in which people live and work in complex intersecting ways (Horkheimer, 1972). While means exist to provide self-determination for all, once one group of people recognizes a state of satisfaction, the group ceases to strive for primacy, and the people set their work on maintaining their status quo position (Horkheimer, 1972). CT urges transformational change, and it is the basis for explaining the accompanying struggles for continuous societal change. As a theory to explain the workings of society, Horkheimer (1972) characterizes CT with the following:

The basic form of the historically given commodity economy on which modern history rests contains in itself the internal and external tensions of the modern era; it generates these tensions over and over again in an increasingly heightened form; and after a period of progress, development of human powers, and emancipation for the individual, after an enormous extension of human control over nature, it finally hinders further development and drives humanity into a new barbarism. (p. 227)

In a capitalistic or otherwise democratic society, the goal of individuals and groups is personal happiness and prosperity, but the result of such strivings is often a great deal of power and freedom for some and much less power and freedom for others, even in a completely free and open society (Horkheimer, 1972). Therefore, for some people, the harder they work, the more they and their descendants remain in a lower political and socioeconomic position. In an age of great technological advancements that are designed to improve the lives of all, many are left behind due to societal structures that deny their access while providing a great deal of opportunity to others (Horkheimer, 1972). Horkheimer (1972) indicated that the system of production that drives society “is not geared to the life of the whole community while heeding also the claims of individuals; it is geared to the power-backed claims of individuals while being

concerned hardly at all with the life of the community” (p. 213). Such a system causes individuals and groups to strive for recognition for themselves, thus maintaining the current status quo and ensuring continued opportunity and advancement for the privileged (Horkheimer, 1972).

CT is the critique of the defenders of the status quo and of the idealist and those of one’s own close group (Horkheimer, 1972). Advantaged people generally want to provide opportunity to others, but they do not know how without fundamentally changing the situation that enables their own prosperity, comfort, and well-being. To engender a society in which all members can achieve self-actualization without distortion, society’s members must understand and orient themselves to principles that lead to a rational ideal for universal, communal ends (Honneth, 2009). Self-actualization of all members must be interwoven into a common understanding for cooperative freedom and desire for the common good (Honneth, 2009). In this construct, cooperative self-actualization requires the neglect of individual self-interests and the understanding and promotion of common interests (Honneth, 2009).

An illustration of common interests being interests that go both ways is the landmark *Brown vs. Board of Education* in 1954 that ended segregation of public schools. While the apparent goal was to provide equal access and benefits of integration to minority students, some commentators maintain that White students needed the benefits of integration and diversity just as much (Strayhorn & Johnson, 2014). In other words, *Brown vs. Board of Education* should have been an acknowledged benefit to White students as well as to previously excluded racial minority students. Researchers have demonstrated that college students who are exposed to organized diversity experiences will tend to become more actively aware and engaged in social and political involvement, although underrepresented racial minority students more likely to do

so (Parker & Trolian, 2015). Research has also demonstrated that cognitive, gender, race, and culture diverse workgroups perform better than homogeneous workgroups (Valentine & Collins, 2015). The point here is that diversity in organizations and equal opportunity for all present positive benefits for all.

Horkheimer (1972) believed that society's normal development depends on a critical attitude that is a protest against the normal order by those who lack self-determination. CT is both a critique of the existing order, and of the current struggle against the existing order (Horkheimer, 1972). In a multi-cultural society, racism may be regarded as a form of power when the majority group knowingly or unknowingly uses racial prejudice to influence or enforce practices and policies in the workplace, thus maintaining the existing order (Evans & Feagin, 2012). Prevalent and historic racism tends to maintain the existing order when racial minority groups internalize dominant racial stereotypical beliefs and oppression, and lower their career aspirations in fields that are racialized (Brown & Segrist, 2016). On the other hand, research has demonstrated that African Americans who value their African heritage, values and beliefs are more likely to experience higher education and career aspirations and achievement even in a racialized environment (Brown & Segrist, 2016). There is a positivist view of the theory that keeps the basic and good structures of society intact, while providing growth and opportunity for those who do not have power. CT provides an overarching view of society, not by analyzing particular events, but by "developing a picture of society as a whole, an existential judgment with a historical dimension" (Horkheimer, 1972, p. 239).

The essential concern of CT is the abolition of social injustice (Horkheimer, 1972). A critical theorist's view is that people who possess advantages from the status quo are unlikely to want a change in the status quo that would benefit outside or underrepresented groups

(Horkheimer, 1972). Alex Honneth (in Frega, 2014), post 1990s, further developed CT to be a more practical view of contemporary western society interpretations of social and political issues. Honneth's (2007) position is that social philosophy is a "critique of social circumstances felt to be alienated or meaningless, reified or even demented" (p. 34). His main idea is that modern advances of society actually represent pathologies that infect and degenerate society, and it requires a social critic to identify and rectify the negative social conditions (Frega, 2014).

The work of social criticism today has evolved "to explain the distance between perceived reality and the public self-understanding of social practices" (Honneth, 2009, p. 188). Everyone has their own perceived reality that resides within their own conscious, and it is the work of the critical theorist to determine how individual perceived realities interact with various social, economic and political structures for a rational society. The process is not a quick changing of opinions and attitudes, but rather it looks to sow doubt and cause us to question the appropriateness of the social structures (Honneth, 2009). Those who benefit from the system in place may resist attempts to change the status quo, knowingly or unknowingly, which also presents barriers to change (Bandura, 1986). Specifically, silence or apathy in the social sphere perpetuates social injustice (Honneth, 2009). A central premise of CT today is that

...the social circumstances that constitute the pathology of capitalistic societies have the peculiar structural features of disguising precisely those states of affairs that would otherwise provide particularly urgent grounds for criticism. In contrast to the approaches that have achieved dominance today, CT must couple the critique of social injustice with an explanation of the processes that obscure that injustice. For only when one can convince the addressees by means of such an explanatory analysis that they can be deceived about the real character of their social conditions can the wrongfulness of

those conditions be publicly demonstrated with some prospect of their being accepted (Honneth, 2009, p. 30).

As an example of how work and career structures form in a society, evidence shows that because men controlled the various economic concerns of industry, they immediately dominated aviation when it began (Luedtke, 2011). Although women sought to be a part of aviation in the early years, societal norms about the types of activities and careers in which women could engage presented a systematic barrier to equal entry. Similarly, societal barriers supported by racial discrimination prevented racial minorities from engaging in aviation as a career. Although overt racist behaviors may not be as prevalent today, the more subtle modern expression of racism may be just as debilitating to those who are underrepresented (West, 2015). Historically White institutions remain “racially contentious environments” that must be carefully navigated by professional people of color (Evans & Moore, 2015, p. 452). Many professions continue to persist with low representation of racial minorities. For example, the nursing field is significantly underrepresented in African American and Hispanic backgrounds despite efforts to diversify (Diefenbeck et al., 2016). A qualitative study on the experiences of African American women in higher education computing sciences programs reinforces the idea that institutional culture impacts underrepresented students (Charleston, George, Jackson, Berhanu, & Amechi, 2014).

At the individual level, the status quo of a society or culture may be a significant inhibitor of a person’s confidence to achieve personal desires. A term used to describe a person’s confidence in his or her ability to achieve a goal is self-efficacy (Litrico & Choi, 2013). Family members, teachers, school counselors, peers, and others who have influence in a person’s life play roles in developing the person’s self-efficacy (Litrico & Choi, 2013). Bandura (1986)

defines self-efficacy as one's belief in one's ability to succeed in specific situations or accomplish a task. Because a person's self-efficacy beliefs are influenced by social factors, it is helpful to investigate how systematic societal norms that have kept particular groups of people outside of aviation careers for so long continue to impact people of underrepresented groups, including those who have chosen to pursue a professional career in aviation.

Social Cognitive Career Theory (SCCT)

Social Cognitive Career Theory (SCCT) provides a theoretical framework for understanding and explaining how people develop academic and career interests, make academic and career choices, and achieve performance in academic and career pursuits (Brown & Lent, 2013; Navarro et al., 2014; van Tuijl & van der Molen, 2016). Recent research in SCCT has investigated other occupation and academic factors such as satisfaction and positive adjustment (Miller et al., 2015). With a desire for understanding and serving the needs of underprivileged groups and for promoting social justice for all, the career development field focuses on many elements of an increasingly diverse world (Brown & Lent, 2013). The work of career development professionals is to promote equity and improve the human condition by helping people obtain an occupation that best suits them and to assist in assuring their success (Brown & Lent, 2013). Occupations serve as a source of personal identity and self-evaluation, and they provide a basis and a stage for social relations (Bandura, Barbaranelli, Caprara, & Pastorelli, 2001). The workplace can be an environment that fosters a positive influence on a person's identity and behavior while encouraging a reciprocal relationship among peers (Brown & Lent, 2013).

SCCT has its foundations in Bandura's social cognitive theory (SCT), which "emphasizes the complex ways in which people, their behavior, and environments mutually influence each

other” (Brown & Lent, 2013, pp. 117). Following Bandura’s seminal work, Robert Lent, Steven Brown, and Gail Hackett devised a theory that centers on the interactions of cognitive-person variables (self-efficacy, outcome expectations, and goals) and aspects of personal characteristics (e.g. gender and ethnicity) and the contextual environment (e.g. social supports and barriers) in the shaping of academic and career pursuits (Lent, Brown, & Hackett, 2000). At SCCT’s core are the cognitive-person variables of self-efficacy, outcome expectations, and goals (Navarro et al., 2014). The SCCT theory is a framework for investigating how the cognitive-person variables interact with a person’s physical characteristics and contextual environment to influence career development (Hayes et al., 2012; Lent et al., 2013). The theory is useful for analyzing the role of multiple internal and external factors in a person’s development of career interests, choice, persistence, performance, and satisfaction (Chung, 2002, Lent et al., 2013). SCCT defines interests as “the extent to which people like particular activities that are available within given school or work contexts” (Lent et al., 2013, p. 23). A person’s persistence in academically pursuing a career is affected by a combination of cognitive ability, previous academic performance, self-efficacy beliefs, outcome expectations, and the extent to which goals are defined (Lee et al., 2015).

SCCT has much documented empirical support for model validity across many specific academic and career domains regarding the areas of interest, choice, and performance (Miller et al., 2015). For example, SCCT models have been quantitatively tested and demonstrated to be good fits among differing groups of engineering majors and have demonstrated that model paths do not differ by gender or race (Navarro et al., 2014). One of the few qualitative studies of engineering students’ adjustment and persistence in their majors used SCCT as a framework (Miller et al., 2015).

Bandura's (1986) SCT provides the foundational framework in SCCT for explaining human motivation, thought and action by demonstrating that each of these occur as a result of reciprocal responses from the environment, cognitive and other personal factors, and behavior. Effects of these interactions do not occur inevitably, but do so in a probabilistic fashion (Bandura, 1986). The environment can significantly affect how people view themselves in terms of having real or perceived high prestige and power as compared with others (Bandura, 1986). People's views about themselves are a large determinant to their behavior and actions, and these views develop in large part through direct feedback from their actions, vicarious experience of the effects from others, and comparison with knowledge they already have and knowledge gained from the experience (Bandura, 1986). The following sub-sections describe how SCCT's cognitive-person variables, personal characteristics, and contextual environment attributes (resources, supports, opportunities and barriers) affect and influence academic and career interests and development in a complex interaction (Brown & Lent, 2013).

Cognitive-person variables. Cognitive-person variables include self-efficacy, outcome expectations and goals, which interact with personal characteristics (e.g. gender, race) and the person's contextual environment to influence career development (Lent & Brown, 2013; Lent, Brown, & Hackett, 2000). SCCT emphasizes the manner in which self-efficacy beliefs, outcome expectations, and personal goals along with interests come together to promote personal agency (Betz & Hackett, 2006; Brown & Lent, 2013). According to SCCT, when a person possesses strong self-efficacy in a particular domain and when the person believes that positive outcomes will occur, interest in the related career may develop (Navarro et al., 2014). Self-efficacy and outcome expectations also influence satisfaction and persistence (Navarro et al., 2014). Career development and persistence depends on the complex interaction between personal attributes,

learning and socialization experiences, and the resources, opportunities, and barriers afforded by their environments (Brown & Lent, 2013).

A definition of self-efficacy is, “people’s judgments of their capabilities to organize and execute courses of action required to attain designated types of performances” (Bandura, 1986, p. 391). Efficacy requires organized and integrated employment of cognitive, social and behavioral skills to produce actions directed at accomplishing goals (Bandura, 1986). It is not a personal trait; rather, it is “a cognitive appraisal or judgment of future performance capabilities” (Betz & Hackett, 2006, p. 6). Self-efficacy can have a major impact on a young person’s career decisions and on a person’s success in career preparation persistence (Chung, 2002; Foltz, Foltz, & Kirschmann, 2015; Lee et al., 2015; Lent et al., 2015). SCCT helps to explain how self-efficacy impacts career decisions (Chung, 2002; Hayes et al., 2012; van Tuijl & van der Molen, 2015) and the educational and career development of youth (Dika, Alvarez, Santos, & Suarez, 2016; Gushue & Whitson, 2006). Among engineering students for example, self-efficacy can be a determining factor to interests, goals and academic satisfaction (Byars-Winston, Estrada, Howard, Davis, & Zalapa, 2010; Navarro et al., 2014).

Self-efficacy develops not in isolation of social contexts, but its growth is also dependent upon the context of personal attributes such as gender and race/ethnicity, the environment, and the social interactions with people in that environment (Brown & Lent, 2013; MacPhee et al., 2013). A point of intersection occurs with critical theory in that within organizations, people can feel powerless due to a loss of autonomy within dominant social mechanism of the organization (Honneth, 2009). Critical theorist Theodor Adorno (in Honneth, 2009) refers to this perceived loss of autonomy as a form of “stubborn identification with an in-group” (p. 67). On the other hand, studies have shown that strong ethnic identity can predict increased career decision-

making self-efficacy (Brown & Segrist, 2016). Cognitive-person factors act on each other in direct and indirect ways. In SCCT models, self-efficacy and outcome expectations have an influence on the development of specific career goals and interests (Garriott et al., 2014). Perceived self-efficacy in a particular area or domain has a significant influence on career choices and pursuits, and regarding career fields may either promote or limit options and success (Bandura et al., 2001; Betz & Hackett, 2006).

SCCT looks at how race, culture, and gender affect career self-efficacy beliefs and expectations in terms of the sociocultural context of career development (Gushue & Whitson, 2006; Tang et al., 2008). Literature on career self-efficacy identifies career and academic self-efficacy differences between White and Black females (Hackett & Byars, 1996). Because the professional pilot career field is cognitively challenging and male dominated, women may not only have to possess high self-efficacy in the field but also a high level of personal self-confidence (Germain et al., 2012). Self-efficacy is an important factor to promoting self-regulated learning and academic motivation (Matthews, Banerjee, & Lauermann, 2014). MacPhee et al. (2013) investigated changes in academic self-efficacy among underrepresented undergraduate STEM majors from entrance to completion of a STEM mentoring program. The study showed women to have lower academic self-efficacy than men at the beginning of the program, but equal to men by the end (MacPhee et al., 2013). The significance of the findings is that mentoring programs can increase academic self-efficacy among underrepresented students who may start out with low self-efficacy, and by raising their confidence level, may lead increased persistence and satisfaction. Helping students to understand the purpose and nature of their particular education and training lessons may have a positive effect on a person's self-efficacy (Germain et al., 2012). Additionally, students may realize a higher level of self-efficacy

when they understand that the associated goals are aimed at performance improvement and at teaching them how to take control of their learning (Germain et al., 2012).

The four sources of efficacy information include performance accomplishments, vicarious learning, physiological and affective states, and verbal persuasion (Bandura, 1986). As they develop cognitively and socially, young people, particularly female youth, need guidance and direction from significant others to gain encouragement and to develop positive self-efficacy enabling them to pursue their career goals (Hayes et al., 2012; Subich, 2012). For the purposes of this study, the self-efficacy domain and area of behavior is the collegiate aviation program of study leading to a career as a professional pilot. The particular interest or goal is a professional pilot career, and the outcome expectation is generally to graduate from a collegiate aviation program with a bachelor's degree and the credentials to obtain a job in the professional pilot role of choice, whether that be airline pilot, corporate pilot, military pilot, or other type of professional pilot.

The other two cognitive-person variables are outcome expectations and goal attainment. Goal definition is a key determinant for behaviors that are necessary for goal attainment. Feelings of negative outcome expectations combined with a strong sense of efficacy may promote behaviors aimed at system change such as protest and social activism (Hackett & Byars, 1996). Collective efficacy, a sense of power and ability sensed by a group, is very relevant to African American women, and may represent an empowerment for groups to affect change (Hackett & Byers, 1996). Social factors may play a strong role in goal attainment in that perceived social pressure could positively influence intentions and therefore actions toward completing a STEM college degree (Foltz et al., 2015). Many factors play a role in personal satisfaction with an academic or career pursuit including the cognitive-person factors (Inda et al.,

2013). Aside from interest in the activity, interpersonal relations in the activity environment and adequacy of compensation may play roles (Lent et al., 2013). The combination of interests and satisfaction can be determinants of persistence in the academic or career activity (Lent et al., 2013). The cognitive-person variables are a key aspect of a person's beliefs and perceptions culminating in their conscious beliefs of their experiential reality.

Personal attributes. In the construct of SCCT, personal attributes include physical characteristics of gender, race, and ethnicity. According to Brown and Lent (2013), SCCT is concerned with the psychological and social effects of gender and ethnicity. Gender and ethnicity are linked to career development in several key ways, especially through the reactions they evoke from the social-cultural environment and from their relation to the opportunity structure to which individuals are exposed. Gender and ethnicity can influence the context in which children acquire self-efficacy and outcome expectations. Gender role socialization processes tend to bias the access that boys and girls receive to experiences necessary for developing strong efficacy beliefs and positive expectations regarding male-typed and female-typed activities. Variables like gender and ethnicity may affect interest development and other career outcomes through socially constructed processes that may appear to operate in the background but that nevertheless can powerfully influence the differential learning experiences that give rise to self-efficacy and outcome expectations, etc. (p. 123)

Gender and race have effects on academic and career efficacy and outcome expectations in terms of experiences that occurred early in life and in present ongoing experiences (Brown & Lent, 2013; Hackett & Byers, 1996). Despite the removal of barriers to traditionally gender-specific careers, many careers remain majority female or majority male, as in healthcare and social work

for female workers and construction and other masculine-typed careers for male workers (Huppertz & Goodwin, 2013; Taylor, Servage, & Hamm, 2014). College student attitudes about careers reflect gender stereotypes in that male and female students believe females choosing stereotypical male careers is more appropriate than males going into stereotypical female careers (DiDonato & Strough, 2013). Allen & Barnhart (2006) relate that "...over 72% of women and just over 67% of men made selections in areas which are traditionally dominated by their particular gender" (p. 24). Evidence for why women do not choose technical or scientific careers at the same rate as men can be seen in consistently lower perceived self-efficacy for work that requires quantitative skills, and occupations traditionally dominated by men (Bandura et al., 2001; Fouad & Santana, 2017; Lent & Brown, 2013). Gender-typed attitudes about careers that are traditionally male or traditionally female may influence women's choices for careers. Meyer, Cimpian, and Leslie (2015) found that women are underrepresented in careers, which society stereotypes as requiring brilliance and inherent or raw intellectual ability.

Psychosocial and environmental beliefs held by women and racial minorities form an attitude that some careers are either not appropriate for them or that they are inaccessible (van Tuiji & van der Molen, 2015). Preconceived self-beliefs about personal behaviors and performance attainments may affect how a minority group person self-chooses to enter an environment. Originator of the school of phenomenology, Edmund Husserl (1965) explained that humans begin life in some type of community, which shapes their attitudes, beliefs, and identity, and people cannot lose their community and personal identity simply by changing attitudes. Although habits formed over a lifetime of work may cause noticeable change of behavior, the new attitudes can only be temporal in nature (Husserl, 1965). Because physical

characteristics can affect the lived experience a person has, it is useful to know their effect on meaning ascribed to the experience.

Contextual environment variables. In SCCT, environmental variables, sometimes called contextual environment variables or factors, include resources, opportunities, supports, and cultural and societal barriers (Byars-Winston et al., 2010; Dika et al., 2016). The influence of the environment depends on how the person receives and responds to it, and individuals interpret and respond to situations and events differently based on the various contextual factors (Lent et al., 2000). The likelihood of a person translating interests into goals can depend on the influence of positive and negative environmental factors (Lent, Brown, Hackett, 2000). For example, parental support indirectly influences math and science self-efficacy and outcome expectations in high school students of color (Garriott et al., 2014). SCCT models have demonstrated that social and environmental supports in general are positively linked to interests through their relations with self-efficacy and outcome expectations regardless of gender or race/ethnicity (Lent et al., 2013). Similarly, Navarro et al. (2014) found that environmental supports positively influence outcome expectations and satisfaction among undergraduate engineering students at a Hispanic serving institution.

Barriers are typically a negative environmental factor. Barriers to career progress are defined as “events or conditions, either within the person or in his or her environment, that make career progress difficult” (Swanson & Woitke, 1997, p. 434). Potential barriers are numerous and they include lack of relevant role models or mentors, limited faculty interaction, and lack of effective advising (Lichtenstein et al., 2014). Cardoso and Mireira (2009) in a study on the relationship of career planning and perception of barriers by 1005 Portuguese high school students suggest that gender and psychological maturity need to be understood due to a tendency

for girls' career self-efficacy beliefs to moderate the relationship of perceived barriers to career planning. Gender discrimination and role conflict in a career may negatively influence girls' career development beliefs and self-regulatory processes (Cardoso & Mireira, 2009). In a study testing the effectiveness of an SCCT choice model consisting of 1208 computing discipline majors at 42 different universities, results demonstrated that environmental supports and barriers relate indirectly to goals through self-efficacy, that self-efficacy is strongly predictive of outcome expectations, and that outcome expectations do not significantly lead to interests or goals (Lent, Lopez, Lopez, and Shue, 2008).

Barriers to certain careers also exist due to racial prejudices and stereotypes when, for instance, racial framing influences how society views minorities, and knowing that the framing takes place, the minority member formulates a response to counteract the framed view (Evans & Feagin, 2012). Strayhorn (2015) reports that Black males experience career barriers including racism, social isolation, and insensitivity to their unique needs and experiences. These types of environmental barriers can be characterized by chilly climate, which results from "negative interpersonal relations, subtle and overt denigration of skills, attribution of attainment to affirmative action policies, avoidance of eye contact, favoritism toward male and majority students, sexual harassment, and in the workplace, a dearth of opportunities to advance, failure to be recognized for contributions, and wage disparities" (Lichtenstein et al., 2014, p. 321). U.S. dental schools that have an environment perceived by African American students to be accepting and respectful of diverse groups tend to have higher number of these students (McCann, Lacy, & Miller, 2014).

Social support networks can be a necessity to overcome prejudices found in the workplace. Typical support may come from family and friends, and from experienced mentors

(Evans & Feagin, 2012). Often, there is a lack of family member support for females entering male dominated occupations because family members may believe the occupations too dangerous or not appropriate for females (Germain et al., 2012). Undergraduate African American student sense of belonging in the academic environment can depend on marital status, year in college, and number of cross-racial acquaintances (Strayhorn & Johnson, 2014). Role models in the aviation field are not commonly available for African American youth, and likewise, they may not be available during the education and training career development phase (Harl & Roberts, 2011). The frequency of cross-racial interactions on a college campus is a positive predictor for sense of belonging for White and Black students, with the influence being greater for Black students (Strayhorn & Johnson, 2014). A posit of classical critical theory is that peoples' identities are shaped when they leave the closed sphere of the family and encounter the social environment of the free market space (Honneth, 1991). When the same subjects encounter exposure to the culture through public media, they tend to become "willing recipients of conformity-inducing messages" (Honneth, 1991, p. 79). Additionally, people tend to develop personal identities within the shared world of a social group due to an emotionally supported relationship of identities, with linguistic communication being the medium for the social learning process (Honneth, 1991; Honneth, 2009).

In rural, resource-based economies such as that in a study by Taylor et al. (2014), relationships and experiences with family members influence career interest development, and they are highly gendered with women seeking caring careers and men seeking hands-on careers. In many cases, parents who do not have working knowledge of educational systems are not able to provide advice and help to their children at the same level of those parents who have the knowledge and also the networks to guide their children's educational careers (Cousins,

Mickelson, Williams, & Velasco, 2008). Organizations may be able to provide positive support by creating mentoring programs and opportunities for underrepresented persons to connect with each other and other professional organizations (Germain et al., 2012). Role models who are peers or others may make significant contributions to the development of career decision-making self-efficacy by providing encouragement and by modeling success (Hayes et al., 2012). Underrepresented Native American middle school students who experience Native American role models report a higher sense of belonging over those who experience role models not relevant to them. The presentation of multiple group representations (i.e., reading about role models, identifying multiple role models) also increases sense of belonging (Covarrubias & Fryberg, 2015).

Self-development and personal choices made during adolescent years determine options and interests that may be available later in life (Bandura et al., 2001). Support that significant others like parents and teachers provide are positively related to career decision self-efficacy and career outcome expectations. The same supports may also counteract negative influences of a youth's environment (Gushue & Whitson, 2006). Others have investigated the role of parents, peers, non-parental role models, and individual aspirations and choices on future behaviors with similar findings (Hayes et al., 2012). The ways in which people believe in themselves and their perceptions of personal self-efficacy strongly influence the choice of career pursuits (Bandura et al., 2001). In the development of STEM-focused careers, self-efficacy is more predictive than personal interest (DiLisi, McMillin, & Virostek, 2011; Lent et al., 2015). Other influencing factors for career decisions are personal contact with someone in a particular field, the father's occupation, and personal knowledge of a particular occupation (Allen & Barnhart, 2006). In a study that included 921 Jamaican youth, gender and youth assets (parent communication, peer

role models, future aspirations, responsible choices, and non-parental role models) were found to be the best predictors of career decision-making self-efficacy, which suggests, “career development programs may need to be tailored to fit the needs of male and female participants...” (Hayes et al., 2012, p. 416). The environment and various social contexts in which a person lives acts upon the person in forming meaning to various encountered experiences. Therefore, knowing the environment is important to knowing the meaning described to a person’s lived experience.

The focus of this study is learning and describing the lived experience of an underrepresented student in a collegiate professional pilot program. Underrepresented students in the historically and culturally White male dominated aviation career field live and operate in an environment that research shows to be challenging and difficult because of being a minority member of the group. Social norms, perceptions, and prejudices can have strong effects on the cognitive-person variables, which in turn affect personal perceptions and the overall lived experience. CT and SCCT provide good frameworks for grounding the stories obtained from study participants and assist in ascribing meaning to their experience. Because there has been very little recent work in investigating and learning the lived experience of underrepresented collegiate aviation students, this study aids in extending application of both theories to the aviation career field.

Related Literature

The review of related literature examines the subject of underrepresented students in a collegiate professional pilot degree program by reviewing literature regarding underrepresentation in STEM and other related fields, a short history of women and racial minorities in aviation, and underrepresented women and minorities in professional pilot careers

and collegiate aviation programs. There is very little recent literature related to the experiences of women and racial minorities in professional pilot careers, which is why it is useful to look at women and racial minority underrepresentation in other STEM fields. The short history of women and racial minorities in aviation provides context to the historical and cultural societal barriers that kept women and many minority groups out of the aviation career field for much of its history, which is a significant factor to their underrepresentation today.

Underrepresentation in STEM and Other Fields

Racial minorities in the United States are underrepresented in science, technology, engineering, and mathematics (STEM) fields relative to their White peers (Chemers et al., 2011; Ison et al., 2016; Strayhorn, 2015). Among undergraduate engineering degrees awarded in 2014, 61.5% were awarded to White students, 3.8% to African American students, 9.6% to Hispanic students, 10.7% to Asian or Pacific Islander students, and 0.3% to American Indian or Alaska Native students (National Science Foundation, 2017). Although women representation in postsecondary education now exceeds men, they are also underrepresented in STEM fields (Hagedorn & Purnamasari, 2012; National Science Foundation, 2017). The vast majority of undergraduate engineering degrees, approximately 80%, are awarded to men (McFarland et al., 2017; National Science Foundation, 2017). The computing sciences are generally perceived as being accessible only to males, and mostly White males, although the field experienced a growth in minorities and women at the end of the last century (Charleston et al., 2014). In 1975, no minority women earned engineering doctorates, and 24 years later in 2009, only 88 minority women earned engineering Ph.D. degrees (Lichtenstein, et al., 2014).

While it is useful to look at STEM fields in this context, underrepresentation is not limited to STEM fields as demonstrated by nearly 80% of all occupations being performed

predominantly by a single gender (Weisgram, Dinella, & Fulcher, 2011). Female representation varies widely among different STEM fields (Meyer et al., 2015). For example, there is a relationship of female underrepresentation in careers in which people believe require a high amount of intellectual ability (Meyer et al., 2015). Reasons cited by women and racial minority doctoral students for the low representation in science and engineering include a lack of role models and mentors, lack of support, isolation and no sense of community, and pressure to perform better than everyone else (Jaeger et al., 2013). Underrepresented women and racial minorities in higher education STEM majors continue to face many of the issues and obstacles that have kept them underrepresented including culture and climate perceptions and attitudes, lack of mentors and role models, discrimination and bias, family supports, and faculty teaching styles not compatible with particular learning styles (Lichtenstein et al., 2014; McCann et al., 2014).

Due partially to differences in population and persistence among STEM disciplines, it is useful to look at each discipline separately (Lichtenstein et al., 2014). A qualitative study on adjustment and persistence of engineering majors highlighted the importance of support from various social contacts such as friends, family, mentors and other students, also highlighting that female students want support from other female students (Miller et al., 2015). Other positive influences to engineering persistence are helpful instructors, academic assistance programs, personal agency, and personal interests (Miller et al., 2015). The study found little variance based on gender and race/ethnicity (Miller et al., 2015). Park-Taylor and Vargas (2012) cite that for urban minority youth, “the lack of exposure to work experiences, career information, and role models represent an opportunity gap in the area of vocational exposure and learning...”

A comprehensive review of the literature on the social and learning environments of underrepresented minority medical students reveals that Black students report more negative perceptions than White students; they have more trouble establishing peer relationships and experience more frequent racial discrimination and racial harassment, and they believe race has a detrimental effect on their school experiences (Orom et al., 2013; McCann et al., 2014). In addition, Black students generally believe that curriculum does not adequately account for diversity and faculty guard their speech to avoid accusations of racism (Orom et al., 2013). The literature also reveals that underrepresented racial minority medical students experience a lower level of satisfaction with their learning environment as compared to White students (Orom et al., 2013). The literature revealed that the majority of the studies were conducted in the 1990s with the most recent being 2006, demonstrating a need to update the literature on the underrepresented racial minority student experience in higher education (Orom et al., 2013).

It can be very difficult to determine how gender and race affect individual consciousness (Lappalainen, Lahelma, Pehkonen, & Isopahkala-Bouret, 2012). Lappalainen et al. (2012) report that, "Gender is at the same time invisible and constantly present in educational institutions." A personal result of underrepresentation in a particular group can be an existence of marginalization and isolation where there is no sense of belonging (West, 2015). People choose fields of study and work based on many factors, and one factor for some STEM fields may be the perceived similarity of others who are already in the field and whether or not they would fit in as a group member (Cheryan & Plaut, 2010). People who seek work that provides opportunity for joy and fellowship enjoy being in groups that bring them emotional fulfillment, and those groups can tend to have people with the same physical characteristics, as well as the same social background (Åberg & Hedlin, 2015). Undergraduate students who choose a STEM major and

those who completed a STEM major tend to have higher ACT scores and higher high school and college GPAs than their non-STEM major counterparts (Mau, 2016). Regarding factors that influence persistence in a STEM degree program, race, high school GPA, and ACT were strong predictors, with high school GPA being the strongest (Mau, 2016).

Research into women's underrepresentation in some STEM disciplines demonstrates several contributing factors including gender differences in self-efficacy, different levels of supports and encouragement, and cultural stereotypes (Diekman, Brown, Johnston, & Clark, 2010). Women's attitudes toward traditional male careers still reflect gender stereotypes, and they tend to choose feminine-typed careers even though they view masculine-typed careers as being acceptable (DiDonato & Strough, 2013). Young women are typically more interested in occupations that involve working with people and ideas and those in which they are able to fulfill communal goals that involve helping other people, whereas young men are more interested in occupations that would involve data and things (Diekman et al., 2010; Tang et al., 2008). In terms of outcome expectations, prestige and external reward tends to influence male career aspirations, and internal rewards tend to influence female career aspirations (Tang et al., 2008; Weisgram et al., 2011). Weisgram et al. (2011) attribute career aspiration to gender values, with females choosing careers that have traditional feminine values including family, altruism and that align with feminine traits such as compassion, sensitivity, empathy and nurturance.

Glass, Sassler, Levitte, and Michelmore (2013) examined why women in STEM fields are more likely to leave the field than are women in other professional fields. They could find no significant differences in family and job considerations between women in STEM careers and women in other professional careers that would cause an early departure from a STEM job (Glass et al., 2013, p. 745). They surmised that female retention in STEM fields "may be due to

the team organization of scientific work combined with the attitudes and expectations of coworkers and supervisors who hold more traditional beliefs about the competencies of women in these rapidly changing fields” (Glass et al., 2013, p. 745). Ceci and Williams (2011) reported that sex discrimination against women in the mathematics career field has been alleviated, but continued underrepresentation is due to other complex factors including family concerns, gendered expectations, lifestyle choices, and career preferences that may have originated prior to their adolescent years. Societal norms regarding masculinity and femininity still have an effect on gender segregation in some fields (Åberg & Hedlin, 2015). Underrepresented persons may feel a sense of their identity threatened by discrimination, stereotype concerns, or a feeling of being devalued by the group (Cheryan & Plaut, 2010; McCann et al., 2014).

Women who work in male-dominated fields feel they must demonstrate that they get along with men and that they adhere to masculine ways, although they may still experience being excluded or sexually harassed (Lappalainen et al., 2012). On the other hand, men by their nature of being masculine easily obtain occupations perceived to be masculine (Huppatz & Goodwin, 2013). Furthermore, by behaving with a feminine disposition, men are able to fit into occupations generally regarded as being feminine such as nursing and hairdressing (Huppatz & Goodwin, 2013).

Structured organizations can become an end to themselves in which the organization becomes static and the stasis of the organization becomes more important than the people within. Such organizational behavior can lead to the perpetuation of individual powerlessness and a growing tendency to arbitrarily exclude those who are dissimilar (Honneth, 2009). Charleston et al. (2014) found enduring racism and sexism in STEM education, particularly in the computing sciences. African American women in computing sciences degree programs may experience

isolation due to limited interaction with peers and subordination due to stereotyped perceptions of being incompetent (Charleston et al., 2014). Ways that underrepresented women may deal with sexism in the work environment include creating their own support groups and networks and creating separated physical spaces where they can be with other like women (Lappalainen et al., 2012).

Studies that focus on underrepresentation in various settings often focus specifically on women or on racial minorities in general, and not as prevalent are studies on women of color who exist in predominantly White male spaces and experience multiple types of marginality (Turner, 2002). The recent causes of women's underrepresentation are different from in the past, and a major factor to the underrepresentation may simply be gendered preferences, as in girls tend to focus on people, and boys tend to focus on things (Ceci & Williams, 2010). Buse (2011) found that self-efficacy, optimism, hope and identity predict female persistence in engineering careers, and that manager relationships and team relationship matter to a woman's level of positive engagement in the work.

Do men and women have the same motivations for pursuing and persisting in STEM fields? In a longitudinal study of male and female Hispanic and White engineering student persistence using the SCCT model, results were consistent with previous SCCT studies showing little to no variance between the students; however, unlike previous studies the longitudinal study showed that female students had strong correlation from personal goals to persistence that was not demonstrated in the male students (Lee et al., 2014). A study on academic satisfaction among Hispanic and White men and women engineering students demonstrated no variance in the SCCT model across gender and ethnicity (Flores et al., 2014). In a study that looked at multiple categories of underrepresentation (gender, ethnicity, social class) in STEM majors,

women generally had lower opinions of their academic skills than men, which can negatively affect their self-efficacy in a particular domain and may personally inhibit them from wanting to pursue those careers (MacFee et al., 2013). Students with multiple categories of underrepresentation (i.e., gender, race, etc.) had significantly lower academic self-efficacy and academic performance than those with one category (MacFee et al., 2013).

American students in general are facing declining education resources and declining science instruction, particularly in less affluent areas, which heightens the issue of underrepresented groups in the technical field of aviation (Brown et al., 2006). Racial discrimination and prejudice, low self-efficacy, and a gap between expectations and aspirations adversely affect minority youth, particularly in urban environments (Park-Taylor & Vargas, 2012; Strayhorn, 2008). In addition, participation by racial minority youth in higher education continues to lag their non-minority peers (Ward et al., 2013; Strayhorn, 2008). The number of students from racial minority groups who enter and graduate from STEM disciplines in higher education remains disproportionately low with only 13% of college student racial minorities choosing a STEM major over the 10-year period surveyed, and only 24% of racial minority students in STEM majors completing a degree within six years compared to 40% for White students in STEM majors (Foltz, Gannon, & Kirschmann, 2014). African American and Hispanic science and engineering undergraduate students are less likely than White and Asian American student to complete their degree (Chang et al., 2014). The gaps between STEM achievement among African American and Hispanic students verses White students and Asian students remain significant despite multiple national efforts aimed at bringing more racial minorities into STEM fields of study (Hagedorn & Purnamasari, 2012).

A lack of STEM opportunities for African American and Latino minorities is often due to a lack of STEM-qualified teachers and school funding in addition to generally low expectations ascribed to racial minority students (Park-Taylor & Vargas, 2012). Despite extensive efforts to prepare teachers in the U.S. for a diverse classroom, there remains resistance to educating teachers for diversity and justice, and the majority of teachers are primarily equipped to teach in “idealized White, middle-class communities where children come from heterosexual, two-parent, primarily English-speaking families (Juarez, Smith, & Hayes, 2008). Unequal preparation and access to educational opportunities for underrepresented students can be a contributing factor to lower levels of persistence, but pre-college preparation and characteristics (i.e., higher SAT scores, higher academic self-efficacy) and the overall college experience can moderate the effects of race (Chang et al., 2014).

Strayhorn (2015) investigated conditions that enable Black male success in STEM fields including their academic preparation relating that little is known about Black males’ preparation for college and their success in STEM fields. He found that pre-college self-efficacy is important for college preparation and success in a STEM field, and a sense of belonging is a factor that contributes to positive outcomes (Strayhorn, 2015). Sense of belonging can come from faculty and peers by demonstrating personal interest in them and in their success in meaningful and intentional ways (Strayhorn, 2015). Factors that can promote successful completion of STEM degrees by underrepresented racial minorities include participation in research programs, joining relevant clubs or organizations, and more frequent studying (Chang, et al., 2014). Peer tutoring, faculty mentoring, and undergraduate research positively contribute to persistence and completion of a STEM degree (Foltz et al., 2015). In the nursing field, a key motivator to persistence by underrepresented racial minorities is an intense desire to become a

nurse, possibly reflecting passion for the career as being a significant factor (Diefenbeck et al., 2016).

A Short History of Women and Racial Minorities in Aviation

Before continuing into the literature on underrepresented groups in the field of professional pilots, it is useful to review the issues from a historical and cultural context. From its beginnings, aviation as a career took its place in the ranks of masculine-typed endeavors not suitable for women by society's norms. In addition, like many activities in the U.S. in the pre-civil rights era, many aviation careers were not available to racial minority groups. This section will briefly describe the history of women in aviation and the history of racial minorities in aviation.

Aviation, as with many occupations, began as a primarily White male occupation. In the early years of aviation in the United States, systemic and societal barriers prevented women and racial minorities from pilot careers in airlines and in the military (Luedtke, 2011). Because pilot careers in the military and commercial airlines were closed to women until the 1970s, women pilots found their way into flying in the field of general aviation (Bednarek & Bednarek, 2003). In 1911, Harriet Quimby became the first woman to earn a pilot certification (Bednarek & Bednarek, 2003; Ison, 2010). In 1921, Bessie Coleman earned her place in aviation history by becoming the first African American woman to earn a license, but she had to go to France to accomplish that feat (Ison, 2010). Airline industry gender roles in the early years reflected societal and cultural norms, which were dictated by the men who led the companies (Mills, 2002). For instance, until the late 1950s, Trans Canada Airlines had a formal rule that women must resign from their employment upon marriage (Mills, 2002).

Recognizing a growing need for pilots in the late 1930s, particularly because of wars raging around the world and remembering the pilot shortfalls upon entry into World War I (Vaughan, 2016), the U.S. Government created the Civilian Pilot Training Program (CPTP). CPTP was by design open to all, but in practice few women and Blacks participated (Bednarek & Bednarek, 2003). Attitudes toward women being professional pilots varied, and many people were openly hostile to the idea of women coming into a job traditionally held by men. Opponents to women becoming pilots claimed women would be taking jobs from men. Other views were that flying aircraft was too dangerous for women and it was socially inappropriate and physically impossible for women (Bednarek & Bednarek, 2003; Luedtke, 2011). In general, men viewed flying as a male endeavor, and women who pursued careers as pilots were upsetting the norm (Luedtke, 2011). Helen Richey was the only female airline pilot prior to the 1970s. Hired as a co-pilot in 1934, the company released her after a few months due to objections by male pilots (Ison, 2008; Luedtke, 2011). Some aircraft companies as a marketing scheme hired women to fly as sales representatives with the idea being that if women could fly an aircraft, then it must not be difficult or dangerous (Bednarek & Bednarek, 2003). Additionally, some in the early days held that allowing women to fly would take the glory and prestige of a pilot career away from the men (Luedtke, 2011).

Racism was the primary reason for Blacks being barred from military aviation until World War II and from commercial aviation until the 1960s (Bednarek & Bednarek, 2003). The basis for training African Americans for service in World War II and an effort to end racial discrimination in military recruit selection was the Selective Service Act of 1940 (Vaughan, 2016). Every African American pilot who flew in World War II trained at the flight school at Tuskegee Airfield in Alabama (Vaughan, 2016). Despite legislative progress however, members

of the all Black Army Air Corps units were subjected to discrimination and limitations on the use of facilities while stationed at follow-on training bases (Vaughan, 2016). African American entry into commercial aviation came in the early 1960s with the Supreme Court ruling on *Green vs. Continental Airlines*, which paved the way for Marlon Green to become the first Black airline pilot (Whitlock, 2009).

Like African Americans, women were barred from flying in the military until World War II, and even then, they were not part of the active military forces. During World War II, women flew in the organization known as the Women Airforce Service Pilots (WASP), formed from the Women's Auxiliary Ferrying Squadron and the Women's Flying Training Detachment (Bednarek & Bednarek, 2003; Luedtke, 2011). Women were able to work as instructor pilots in the CPTP and in the Civil Air Patrol, but they were limited to roles and missions that were not considered dangerous (Bednarek & Bednarek, 2003). The WASP organization had just over one thousand women pilots during its time (Bednarek & Bednarek, 2003). One of those who flew as a WASP during World War II was Betty Greene, who later became the first field pilot for Mission Aviation Fellowship (MAF) and flew as a mission aviation pilot for MAF for 30 years (Bednarek & Bednarek, 2003). When the war ended the WASP program ended, and women were again barred from flying military aircraft (Luedtke, 2011). Although women had gained new respect as pilots, the fear and the attitude that women pilots would be able to take jobs from men and therefore gain power in the economic sphere remained in the majority male aviation industry (Luedtke, 2011).

Regardless of general societal attitudes, programs to encourage women to pursue careers as pilots have existed in various forms throughout the history of aviation, becoming more prominent during the 1970s as commercial and military aviation became open to women.

Throughout the 1980s, 1990s and beyond however, the growth of the number of women pilots has been less than hoped for, and during some periods has declined (Bednarek & Bednarek, 2003). In 1973, Emily Warner became the first female airline pilot since Helen Richey's short tenure in 1935 (Luedtke, 2011). In 1972, the percentage of women serving in the U.S. military was 1.9%, and it is about 15% now (Yuengert, 2015). In 1972, the Department of Defense initiated a task force to increase the number of women in the military, ironically, to alleviate a shrinking population of qualified men and potential shortage of male recruits (Yuengert, 2015). In 1973, women were allowed to be military pilots, and in 1992, the U.S. government removed restrictions to women flying combat aircraft (Yuengert, 2015).

Underrepresented Professional Pilots

Those who are attracted to flying and to a career in aviation generally possess an inherent passion for flight and for aircraft (Harl & Roberts, 2011). They typically view the career as a lifestyle rather than as a job, so in this sense pilots are bound together by the love of flying (Harl & Roberts, 2011). The field of aviation is also one that tends to be conformist in nature (Davey, 2004). The system of conformity tends to maintain organizational structures that rebuff nonconformists and people groups such as females and racial minorities who appear nonconformist to the primarily White male professional workforce (Davey, 2004).

The commercial airline industry employs around 71,000 pilots, of which less than 700 are African American, and less than 20 are African American female (Evans & Moore, 2015). Although women are close to outnumbering men in the overall workforce (Germain et al., 2012), they remain underrepresented in many traditionally male gender-specific occupations, prominently including aviation (Walton & Politano, 2014). Women who work in male-dominated occupations may experience high scrutiny, isolation and ostracism, unfavorable career

advancement opportunities, sexual harassment, gender-role stereotypes, work-home conflicts, higher occupational dropout rates, and the need to conform to male behaviors, which can lead to personal stress, lower levels of self-efficacy and self-esteem, and related health problems (McCarthy et al., 2015; Walton & Politano, 2014). Some male-gendered workspaces are characterized by masculinity, physical demands, and harsh conditions generally more suited to men, at least in the popular cultural sense (Atkinson, 2009). Other occupations are not as physically demanding (i.e. office work), but men being in control can shape the environment to make it masculine in nature (Atkinson, 2009). Women in professional pilot roles generally see themselves in occupations that are male-dominated and very masculine (McCarthy et al., 2015).

Hitlan, Clifton and DeSoto (2006) define workplace ostracism as “the exclusion, rejection, or ignoring of an individual (or group) by another individual (or group) that, hinders one’s ability to establish or maintain positive interpersonal relationships, work-related success, or favorable reputation with one’s place of work” (p. 217). Feelings of exclusion in the workplace can lead to increased anxiety, depression, loneliness, anger, and other psychological deficiencies, but such feelings can also influence efforts to work harder and to conform to group norms (Hitlan et al., 2006). African American female college administrators experience multiple psychological effects of underrepresentation including feelings of having to be the representative of all African Americans, stress to perform at high levels, and being the outsider and out of the mainstream with a lack of presence and power (West, 2015). There is also a sense of physical isolation caused by an inability to connect with non-African American colleagues (West, 2015). Harl and Roberts (2011) highlight the important role of mentors in preparing for a highly technical career as a pilot in business aviation especially for young Blacks entering a predominantly white industry. According to SCCT, interest in an academic or career activity is a

source of satisfaction; therefore, negative environmental factors that are a detriment to satisfaction may compound the psychological stress experienced by underrepresented members who are unable to achieve their desired goals (Lent et al., 2013).

Studies have demonstrated that male flight instructor attitudes toward females in pilot training are more positive when female student behavior is that expected of females and when the female students demonstrate good competence (Germain et al., 2012; Walton & Politano, 2014). Walton and Politano (2014) found no greater levels of stress and anxiety among female professional pilots, and they also found that time spent with females tends to enhance male perceptions toward their flying skills. Germain et al. (2012) offer as a possible reason that although sexism, isolation and harassment may still exist against female pilots, those who achieve their positions in the occupation may have developed greater levels of self-efficacy and self-confidence. Perceptions of the challenges and demands of the work environment may vary among women pilots, but one common theme may be that women may have to adapt their behaviors to be taken seriously, while men do not (McCarthy et al., 2015).

Evans and Feagin (2012) suggest that systematic racism still exists in workspaces dominated by White employees. In an exploration of the experiences of middle-class African American pilots, Evans and Feagin found continued negative attitudes toward the intellectual abilities of African Americans and perceptions that African American pilots are not able to be qualified to pilot aircraft. They noted an insight from one African American pilot who observed that racism “isn’t so much in your face now...It’s subtle; it’s underneath; it’s sneaky” (Evans & Feagin, 2012, p. 14). Despite higher representations and structures that promote equality for all, people of color still experience micro-aggressions in traditionally White-person spaces due to still dominant ideologies and narratives (Evans & Moore, 2015). Color-blind racism is a practice

in which organizational structures and everyday norms maintain a system of racism despite the assertions of racial neutrality (Evans & Moore, 2015). There are few studies that investigate how people of color must negotiate various settings in education and careers, and there is a lack of research and literature on the experiences of Black employees in the commercial aviation industry (Evans and Feagin, 2012; Evans & Moore, 2015).

Underrepresented Aviation Student Perceptions and Experiences

In the specific domain of undergraduate aviation, there are very few recent studies that address the underrepresented student experience. I was unable to find any studies that address the racial minority lived experience in collegiate aviation. Most of the studies on underrepresented students focus on determining numbers of women and racial minorities in collegiate aviation and investigating why the numbers remain low. The numbers are similar to certain other STEM fields such as engineering, computing sciences, and mathematics. It is important to investigate the experience of underrepresented students in the collegiate aviation domain because they are definitely in the minority in a field culturally dominated by the majority White male population. On college campuses, underrepresented racial/ethnic students may experience discrimination and hostility that affects their education success and inhibits progress toward building a more diverse workforce (Hurtado & Alvarado, 2015). In general, research has shown that a hostile racial climate on campus negatively impacts student sense of belonging and retention, and increasing the representation of racial groups on campus can reduce discrimination and bias (Hurtado & Alvarado, 2015).

In a survey of 30 collegiate flight programs examining barriers and gender biases, researchers found that barriers do not exist and that negative comments are not frequent (Depperschmidt & Bliss, 2009). In addition, results indicated that some female students

experience negative comments they must deal with as a matter of course, and they must work harder than male students for recognition (Depperschmidt & Bliss, 2009). Regarding persistence in the program, female students may not leave the program due to barriers or gender bias, but they may leave due to lack of self-confidence even though they may possess the requisite knowledge and skills (Depperschmidt & Bliss, 2009). Turney (2002) found that female students who persist in pilot education and training programs tend to adapt to the male environment and behave more like their male counterparts (Turney et al., 2002).

Women in male dominated careers often lack other female role models and mentors to observe, share with, and learn from, which may make them feel like outsiders and may inhibit learning success, career advancement and lower motivation (Germain et al., 2012). Self-efficacy and self-confidence can play major roles in the success of women in the challenging and male-dominated pilot profession (Germain et al., 2012). The availability of female mentors and faculty for female students may be a factor in pilot training persistence (Turney et al., 2002). A survey of the factors that attract women and minorities to selected collegiate aviation programs concluded that student organizations and student mentorship programs are particular attractors (Clark, 2006). In a research survey to determine barriers to attraction and retention of women pilots in general aviation, Germain et al. (2012) noted factors of lower acceptance by male instructors, aircraft cockpits are not designed for women's physical characteristics, a lack of female role models and instructors, and a lack of self-confidence in their abilities.

Summary

The outline of the literature review in Chapter Two provides evidence regarding underrepresentation of women and racial minorities in aviation. The chapter summarizes the historical context of the industry that is majority White male, and it provides current trends and

issues of the changing demographics. The chapter explained how the theoretical framework is associated with internal and external factors that influence career choice and persistence. The chapter also provides an analysis of the research on underrepresented people in STEM and in aviation. There is a good bit of research regarding women and racial minorities in STEM. There is some research on women in aviation, but there is a dearth of research on racial minorities in aviation. The literature review also reveals that most of the research on underrepresented minorities in aviation is survey in nature or pertains to perceived barriers to the career. There are a few studies on underrepresented students' perceptions of their collegiate aviation program, but very little regarding the lived experience of an underrepresented student in aviation.

Understanding the lived experience of underrepresented students in a collegiate aviation program may help in their satisfaction and persistence in the program and in increasing the underrepresented student population in aviation. Therefore, this research study contributes to the field of knowledge of underrepresented students in aviation and fill a gap in the current literature.

CHAPTER THREE: METHODS

Overview

The purpose of this transcendental phenomenological study was to describe what it means to be an underrepresented student in a collegiate professional pilot degree program. When conducting a qualitative study of this nature, it is important to design research methods such that the study is conducted in an orderly and disciplined manner with care and rigor (Moustakas, 1994). This chapter provides specific details about the methodology of the research study. The chapter begins with a discussion of the design, setting, and criteria for locating and choosing participants for the research study. The chapter provides an explanation of the research procedures, the role of the researcher, data collection, and data analysis. The chapter lists and explains the research questions. Lastly, the chapter contains a discussion of the trustworthiness of the research study and relevant ethical considerations.

Design

Phenomenology is “a method for investigating the structures of consciousness and the types of objects that present themselves to consciousness” (Giorgi, 2009, p. 87). In its basic sense, the goals of phenomenology are to determine what meaning a phenomenon has and how the phenomenon is experienced in the human consciousness (Seidman, 2013; van Manen, 1990). Phenomenology seeks to determine the essence of a person’s or group of persons’ lived experience of a particular phenomenon (Patton, 2002). The essence is a universal that describes the essentials of what the phenomenon is (van Manen, 1990). The acknowledged father of phenomenology, Edmund Husserl (1965) wrote, “the investigation must be directed toward a scientific essential knowledge of consciousness, toward that which consciousness is according to its essence in all its distinguishable forms. The investigation must also be directed toward what

consciousness means...” (p. 89). In phenomenology, we desire to find that which tends to be hidden from view (van Manen, 1990). In other words, we seek to find that which lives in the consciousness of the persons experiencing the phenomenon to discover its true essence (Husserl, 1965). By learning what is in the consciousness of those experiencing a particular phenomenon, phenomenology provides empirical evidence-based knowledge a researcher may analyze to identify influencing factors inherent in a given social situation or injustice (Frega, 2014).

For Husserl (1965), the phenomenological method philosophically focuses on a search for truth, and the intent “to establish philosophy on a basis of unimpeachable rationality” (p. 4). With phenomenology, the search for truth and meaning comes from deep reflection on the inner consciousness for the purpose of going beyond what is seen on the surface and in everyday life (Moustakas, 1994; van Manen, 1990). Phenomenological reflection is a thought process that becomes a personal engagement with an issue, and which helps the investigator and the person experiencing the phenomenon to understand its essential meanings (Moustakas, 1994; van Manen, 1990). The lived experience that exists in a person’s past and present can only be realized through thoughtful reflection as translated into words in a “textural description of its essence” (van Manen, 1990, p. 36). Everyone has a lived experience, and it is through the process of phenomenological investigation that we seek to fully bring out that lived experience to know it and to see it for all that it is (van Manen, 1990). Meanings come from experiences, and it is through people’s told stories of those experiences that we are able to know and understand their meaning (Seidman, 2013).

Phenomenology essentially deals in the “everyday world where people are living through the various phenomena in actual situations” (Giorgi, 1985, p. 8). Two common phenomenological investigative approaches are hermeneutics and transcendental phenomenology

(Creswell, 2013; Moustakas, 1994; van Manen, 1990). Transcendental phenomenology is descriptive phenomenology in that it reveals a pure description of a lived experience through the “grasping of the essential point of view”, or the essence of a phenomenon (van Manen, 1990, p. 26). It is transcendental because the investigation seeks to perceive the experience “freshly, as if looked at for the first time” (Moustakas, 1994, p. 34). People perceive and experience objects within their consciousness. To view objects from a transcendental phenomenological perspective one must engage in a reflective search, without imposed limits, for the essence of the meaning (Giorgi, 2009). In this manner, the description is already an interpretation in itself and it does not require another interpretation (van Manen, 1990).

The phenomenological description seeks to make hidden meanings visible, much like a piece of art makes visible the inner consciousness of the artist. A phenomenological meaning description looks beyond the lifeworld, which is the basic, ordinary world in which we live and see (Giorgi, 2009). The lifeworld provides the backdrop for the more specialized individual human experiences (Giorgi, 2009). Husserl’s (1965) approach to the search for knowledge was philosophical and a return to a method of contemplative reflection. He and adherents to his philosophy maintain that phenomenological investigation is only descriptive, and interpretation lies outside of the phenomenology (Giorgi, 1985; 2009; van Manen, 1990). A key goal of descriptive phenomenology is to reveal a precise expression of the experience as conveyed by those experiencing the phenomenon (Giorgi, 2009). Husserl (1965) maintained that pure phenomenological science can only be essence investigation. Phenomenological researchers utilize a method of free imaginative variation to detect the structures of the experiences and to discover the true essential meanings of the phenomenon (Giorgi, 2009; Moustakas, 1994).

Departures from purely descriptive phenomenology, including Heidegger, Hegel and Habermas, maintain that knowledge discovery and formulation can only come from a hermeneutical approach in that there is always an existent preunderstanding of meaning that must be interpreted in light of the particular experience (Honneth, 1991). Van Manen (1990) describes hermeneutics as being “how one interprets the ‘texts’ of life” (p. 4). It is an attempt to fully interpret an aspect of the lifeworld (van Manen, 1990). Habermas (in Honneth, 1991) views knowledge formation as being one of a communicative social action in which people interpret their shared experiences and orientations to the world within a horizon of preconceived notions and attitudes. Hermeneutics is a process of seeking understanding of events within a context of previous or related meanings, in other words an interpretive relationship between subjects rather than a cognitive relation of a subject to an object (Honneth, 1991). Hermeneutics provides a process for understanding meaning, and it provides a basis for social development that can only be achieved in a process of “continuously renewed understanding” through social communication and “interpretation of culturally objectified meanings” (Honneth, 1991, pp. 224-225).

For this qualitative research study, I used a transcendental phenomenological design, which I chose as the most appropriate qualitative design type to construct a composite description of the essence of the lived experience of a group of people experiencing a common phenomenon (Moustakas, 1994). In conducting this phenomenological study, I utilized methods outlined and explained by Moustakas (1994) and Giorgi (1985; 2009). The phenomenon investigated in this study is the lived experience of underrepresented students in a collegiate professional pilot degree program, and the emphasis of the investigation is on describing the meaning, or essence, of the lived experience separate from the context of the greater human

experience (van Manen, 1990). My primary goal in this investigation was to obtain a rich and thick description of their lived experience that has universal meaning for the population of underrepresented students in collegiate aviation programs. Because very little is known of the lived experience of underrepresented students in a collegiate professional pilot degree program, the transcendental phenomenological approach is appropriate. This research study provided an opportunity to investigate the phenomenon as if looked at for the first time. It is very possible to interpret the lived experience of underrepresented students based on social and cultural theories, history, and contexts, but the intent of this study was to take a new and fresh approach to create a rich description of the experience and to learn true meanings of the phenomenon as lived and presented by current collegiate aviation students. No recent investigators have asked the female or racial minority aviation student what it means to be an underrepresented student and what is the lived experience of those students.

Accomplishing a transcendental phenomenological study requires the setting aside of preconceived knowledge, beliefs and judgments about the phenomenon to investigate the phenomenon from a fresh and open perspective (Giorgi, 1985; 2009; Moustakas, 1994). Van Manen (1990) explained that phenomenological inquiry presents a problem that we know too much about a particular phenomenon, and we tend to approach it with an overload of logic, presuppositions, preconception, and assumptions. Therefore, the investigative process should be disciplined and systematic utilizing what Moustakas (1994) calls the Epoche process to bracket out the researcher's experience with the phenomenon and to create new knowledge regarding the phenomenon. Through bracketing, we must reflectively place the phenomenon outside of our thoughts and outside any previous or related experience with the phenomenon (Giorgi, 1985; 2009; van Manen, 1990). The researcher should remove and set-aside judgments and

introspection that are based on personal experience (Husserl, 1965; Moustakas, 1994). In other words, we should take hold of the notion that our preconceived knowledge is nothing compared with the knowledge that the phenomenon actually holds and is waiting for us to discover (van Manen, 1990). Transcendental phenomenology seeks to determine meanings and to create new knowledge from those meanings through a logical and structured process of identifying presuppositions and setting them aside (Moustakas, 1994).

Van Manen (1990) posited that modern human science should contain a critical perspective in relation to the lived meanings of people in the real world, and he asked if critical theory can develop apart from what he calls the “concrete world of living meanings” (p. 141). Horkheimer and Adorno’s investigations in their early development of critical theory steered the discipline prominently away from empirical science to one that is guided by philosophy, in which reflection becomes a key part of the epistemology (Honneth, 1991). Phenomenology does not necessarily promote a political agenda, but it can serve to bring awareness of an issue and perhaps a concern that may influence action (van Manen, 1990). Through intense reflection, phenomenology brings to fore that which is held in obscurity so that it may be seen in its full essence rather than what is only seen in passing (van Manen, 1990). The phenomenological approach requires an open mind to see things freshly, as if for the first time (Moustakas, 1994).

For a researcher who has spent a long career in aviation, the setting aside of preconceived notions about people involved in aviation can be the most difficult aspect of the process. The process requires an intuitive-reflective approach to see and know what actually exists in plain sight rather than what we judge to exist based on past understandings or lack of understandings (Moustakas, 1994). The purpose of utilizing a transcendental phenomenological approach was to fully view the phenomenon in a new and fresh manner (Moustakas, 1994). The goal was to fully

describe the phenomenon without judgment and to create a rich and accurate description of the phenomenon (Giorgi, 1985; 2009; Husserl, 1965). The process of creating new knowledge and understanding sometimes requires setting aside of the commonly accepted knowledge and understanding; therefore, previous ideas and notions should be bracketed out so that what remains is the essence of the phenomenon (Giorgi, 1985; 2009; Moustakas, 1994). There is no intent to interpret, to construct, or to explain a phenomenon, only to describe the meaning as experienced by underrepresented students (Giorgi, 2009).

During the conduct of this study, I utilized continuous reflection while engaged in a structured approach, and I consciously considered my thoughts about racial minorities and females in my past and current aviation organizations. I believe most people would like to see others as being the same regardless of gender or race. But we are not the same. Other than obvious physical characteristics, we all come from different life narratives. In an environment where performance matters to preservation of life and to accomplishment of military or company mission, those who are seen to be different than the majority can tend to be ostracized or marginalized. In the military environment, each person must learn support all others and to rely on all others for mission accomplishment. In the civilian airline flying environment in which team building occurs when the crew reports for a flight, everyone must adhere to standardized procedures and behaviors to build and enhance confidence. Preconceived negative notions about someone on the team before the mission or flight even starts can lead to low levels of confidence that the person can live up to standards of performance. Expectancy bias in this case can lead to the target person being seen as living out preconceived notions.

Personally, I tend to want to see any underrepresented person succeed, which may lead to me over-supporting or making a bigger deal out of good performance by the person as a way of

validating my personal biases that females and racial minorities are just the same or better than any White male pilot. I am always personally interested in how the underrepresented person became interested in flying, and how they came to the point at which they are able to pursue the career. I personally see underrepresented persons behaving in a manner that helps them to fit into the majority way of behaving. Maybe they act one way when they are in the environment of majority White males, and another way when they are with those of similar or same physical characteristics and backgrounds.

In some cases, it may be that only one common understanding is prevalent because no one has stopped to systematically consider another viewpoint, and perhaps, the people actually experiencing the phenomenon have not fully considered or reflected on what the situation means to them or others. In other cases, it may be that the majority viewpoint is overwhelmingly engrained into the society and culture such that other viewpoints are not universally considered. The experience of one group of people does not necessarily relate to the experience of all groups in the same context. An object in view has different meanings for different people (Moustakas, 1994). Therefore, there may be different meanings for different people striving for the same career objectives. More specifically, studying, practicing and learning to fly aircraft with the intention of pursuing a career as a professional pilot may have different meaning for different people engaged in the process. Every student learns the skills of flying aircraft within the same context of the school, the curriculum, and the learning objectives, but every student is an “experiencing person” who may perceive the experiences differently based on his or her own personal context (Moustakas, 1994, p. 43). Phenomenology is a method to generate new knowledge by scientifically investigating the perceptions and experiences that exist in the consciousness of those experiencing the phenomenon (Moustakas, 1994). Moustakas (1994, p.

53) said, “The whole process takes on a character of wonder as new moments of perception bring to consciousness fresh perspectives, as knowledge is born that unites past, present, and future and that increasingly expands and deepens what something is and means.”

This study focused on the lived experience of underrepresented students who are currently in a collegiate professional pilot degree program. The experience of those students is transitory, which makes phenomenology an appropriate method for studying this particular human experience and gaining a deeper understanding of their point of view and their perceived reality that comes from their personal experience (Seidman, 2013). To fully understand the lived experience of such a collegiate professional pilot student, I engaged participants who are currently living the experience as university students (Seidman, 2013). The context is the collegiate aviation education experience that lives in the consciousness of the aviation students who are learning and striving to become professional pilots (Giorgi, 2009). In looking for meaning of the participants’ lived experience, I engaged in continuous intensive reflection (Seidman, 2013).

The primary data for this investigation are participant descriptions obtained from semi-structured and open-ended interview questions and dialog (Moustakas, 1994). Simply observing the students and casually interacting with them would have only provided an understanding from my own subjective point of view. Through in-depth interviews and focus groups, I sought to achieve an understanding of the participants’ experiences from their subjective point of view to truly discover and know the essence of the lived experience (Seidman, 2013). The primary source of knowledge in phenomenology is perceptions, which must be gleaned through the participants’ written or verbal descriptions of their experiences (Giorgi, 2009). Interviews and written reflections with the participants provided data that is comprised of first-person accounts

of their life experiences (Moustakas, 1994). In all, one-on-one interviews, a focus group, written participant reflections, and researcher journaling comprised the data collection (Creswell, 2013; Giorgi, 2009; Moustakas, 1994). The intent of the data collection was to gain information from personal experiences and stories and then transform the data into thick, rich descriptions through a process of structured reflective analysis and interpretation of the accounts (Moustakas, 1994). From participant descriptions, my objective was to formulate a comprehensive description and understanding of the phenomenon within the context of their situations (Giorgi, 2009; Moustakas, 1994). I collected data for this study at three separate universities that have four-year professional pilot baccalaureate degree programs.

In summary, the phenomenological research approach provides a framework for learning what it means to be an underrepresented student in a collegiate aviation program. I selected the transcendental approach due to my desire to explore the phenomenon from a fresh perspective and to create a thick, rich description that displays universal meaning of the phenomenon (Moustakas, 1994). The common phenomenon among the participants is their identification as an underrepresented student in a collegiate professional pilot degree program. In studying this problem, it is important to describe the essence of the lived experiences of those who are experiencing the phenomenon (Moustakas, 1994). Throughout the process, I considered key questions regarding the nature of the phenomenon, its qualities, and what differences there are at different times and in different conditions (Moustakas, 1994).

Research Questions

Research questions guide the research. Specifically, research questions in a phenomenological study should be those that “ask for the meaning and significance of certain phenomena” (van Manen, 1990, p. 23). I formulated research questions for this study to “reveal

more fully the essences and meanings of the human experience” (Moustakas, 1994, p. 105) of being an underrepresented student in a collegiate professional pilot degree program.

Central Question (CQ): What does it mean to be an underrepresented student in a collegiate professional pilot degree program?

Sub-Question 1 (SQ1): What influence do cognitive-person attributes have on meaning that is experienced and described by the underrepresented aviation student?

Sub-Question 2 (SQ2): What influence do personal characteristics of gender and race have on meaning that is experienced and described by the underrepresented aviation student?

Sub-Question 3 (SQ3): What influence does the contextual environment have on meaning that is experienced and described by the underrepresented aviation student?

Sub-Question 4 (SQ4): What meaning does the underrepresented aviation student ascribe to his or her experience in terms of social justice and equality as it relates to their academic and career development?

Setting

The settings for the study were three separate universities that offer four-year professional pilot bachelor degree programs. I chose to conduct my investigations at three locations due to my intent and desire to achieve a universal description rather than a description that may only apply to one particular university environment (van Manen, 1990). I chose the three particular settings based on an adequate enrollment of underrepresented students and based on administrator agreement to host the research. In my criteria for school selection, the school must have a bachelor degree that is designed to prepare students for a career as a professional pilot. A typical aviation degree program resides within a college or school within a university, or it resides within a department within a university college or school. Such degree programs are

typically led by a Dean or by a Department Chair depending on the organization of the university. For the purpose of this study, I use the term, collegiate professional pilot degree program, to describe the programs of each school regardless of how each school names its own particular program.

Each university aviation program selected had enrolled female and racial minority students who are preparing for professional pilot careers and who were available and willing to be participants in the study. The national average female student population for collegiate aviation programs is between 10% and 15%. Statistics for racial minority student population in professional pilot degree programs are not readily available. My desire was for each selected program to have at least five racial minority students (African American, Hispanic, and/or Native American) who were willing to participate in the study. The three universities selected are located in the U.S. Midwest, Mideast, and East. The pseudonyms for the three selected study schools are Western University Eagle School of Aeronautics, Central University Hawk School of Aeronautics and Eastern University Falcon School of Aeronautics.

Participants

Creswell (2013) suggests that phenomenological studies may vary from three to four participants to ten to fifteen participants. Other researchers in phenomenology recommend sample sizes of five to twenty five individuals and three to ten individuals (Creswell, (2013). Qualitative inquiry can be ambiguous by nature, and there are no quantitative rules for determining sample size (Patton, 2002). The sample size should meet the researcher's desired goals for study purpose, obtaining useful data, credibility, and available time and resources (Patton, 2002). Surveys may be used to capture data from a large number of participants, and they are useful for gaining general knowledge and understanding. A phenomenological inquiry

however, seeks to learn the experiences of the participant from an inner consciousness perspective using a reflective process. The investigation “seeks to reveal more fully the essences and meanings of human experience...and it engages the total self of the research participant” (Moustakas, 1994, p. 105). A key interest of this study was to obtain rich, in-depth information from a number of students who have experienced the phenomenon. With the desired goals in mind, a sample size of twelve to fifteen participants is appropriate as long as the participants meet the desired criteria of being an underrepresented student. The participants for this research study are fifteen purposefully sampled undergraduate students currently enrolled in a professional pilot degree program. I desired four to five participants at each university. Table 1 contains the participants for this study.

Table 1

Participants

School	Total Participants	Demographics
Eagle	5 Students	1 Hispanic Male, 2 White Female, 2 Black Male
Hawk	6 Students	1 Hispanic Male, 4 White Female, 1 Black Male
Falcon	4 Students	4 Black Male

With the assistance from school administrators and faculty, I used purposeful sampling to select the participants. Purposeful sampling ensured that the participants met the desired criteria of being an underrepresented student. Patton (2002, p. 230) explained, “Purposeful sampling focuses on selecting information-rich cases whose study will illuminate the questions under study.” The criterion is underrepresented students in a collegiate professional pilot degree program. Each participant met the definition of underrepresented student by race or gender,

which means each participant is someone who has experienced the phenomenon of being an underrepresented student in the aviation professional pilot degree program due to race and/or gender and is capable of providing full descriptions of their experiences including situation and behaviors (Moustakas, 1994). It was important also that participants have a strong interest in personally understanding the meanings of the phenomenon they are experiencing, and that they are willing to participate in interviews and focus groups (Moustakas, 1994). Participants agreed to be audio-recorded, and they agreed to have the data published in a dissertation and potentially, other publications (Moustakas, 1994; Seidman, 2013). I used pseudonym names for each participant to protect identity.

In gaining participants for the study, I solicited assistance from administrators and faculty of the selected schools. At one of the schools, a flight department head solicited potential students prior to my arrival on site and scheduled the interview times for me. At another school, a faculty member assigned the task of recruiting participants to one of his students as a senior student project. The student used my materials for participant solicitation and recruited participants and assisted in making contact and scheduling the interviews. At another of the schools, I personally recruited students on site as I encountered them in the flight operations department. As an aid to participant recruitment, I sent a research plan summary (see Appendix A) and a summary guide for administrators (see Appendix B) (Moustakas, 1994) to the selected schools, which the administrators used to assist me in seeking participants. Target year groups were the upper grade levels (third or fourth year students who have been in the program at least one full academic year) to ensure the participants have had experience with the phenomenon. My desire was to select at least one participant from each of the underrepresented racial/ethnic minority demographic groups (i.e., African American, Hispanic, or Native American) and at

least two female participants from each of the selected schools. Selected participants could be a transfer student from a different aviation college or university, but each participant should have completed at least one full academic year at the present school to ensure sufficient experience in the program. Participant students should have completed a minimum of the Private Pilot certification at the subject school, which demonstrates a good level of commitment and aptitude to pursuing a professional pilot career and helps to ensure that the student has fully experienced the phenomenon at that setting. Although I included, as potential participants, recent graduates (less than one year since graduation) from the same program and who are currently serving as flight instructors in the degree program as potential participants, I did not have any of those in the actual study. I explained the study purpose and procedures to potential participants in person and by personal email. In addition, I utilized participant recruitment letters and a flyer (see Appendix F) to assist in recruiting participants at the study schools. I used the informed consent form (see Appendix H) to explain the study purpose and procedures to participants. The following is a detailed breakout of the participants.

Table 2

Participant Details

Participant Pseudonym Name	Demographic	Level/Year at School	Certification
Andrew	Hispanic Male	Senior/Third Year	Commercial Pilot
Bailey	White Female	Junior/First Year	Private Pilot
Caleb	Black Male	Soph/Second Year	Private Pilot
Emily	White Female	Fresh/First Year	Private Pilot
Edward	Black Male	Soph/Second Year	Private Pilot

Allison	White Female	Junior/Second Year	Flight Instructor
Fran	White Female	Junior/Third Year	Flight Instructor
Frank	Black Male	Soph/Second Year	Private Pilot
Freda	White Female	Senior/Third Year	Flight Instructor
Faye	White Female	Senior/Fifth Year	Commercial Pilot
Robert	Hispanic Male	Junior/Third Year	Commercial Pilot
Harvey	Black Male	Senior/Fourth Year	Flight Instructor
Henry	Black Male	Senior/Fourth Year	Private/Instrument
Hap	Black Male	Senior/Fourth Year	Commercial Pilot
Hank	Black Male	Senior/Second Year	Private Pilot

Procedures

The first step of the study was to obtain the necessary approvals including a submission of the proposed study to the Liberty University Institutional Review Board (IRB). I also contacted the IRB office administrator at each of the study schools and explained my research and solicited approval to conduct interviews and a focus group with students at each of the study schools. Upon receipt of Liberty University IRB conditional approval (See Appendix C), I sent requests for IRB approval to each of the study schools (See Appendix E). As soon as I received approval from each study school, I requested full approval from the Liberty University IRB (See Appendix D). In the meantime, I began to arrange a time period to travel to the study schools to conduct the interviews and focus groups. I spent a full week at Eagle School of Aeronautics and a full week at Hawk School of Aeronautics. I spent one full day at Falcon School of Aeronautics.

Seidman (2013) recommends that qualitative researchers utilize the interview as a primary method of data collection. I created an interview guide that contained my interview questions (See Appendix I) and a focus group guide (See Appendix J), and then I conducted a pilot of the questions with two students from my university aviation program, one White female and one Black male (See Appendix K for Pilot Study Description). The pilot interview sessions enabled me to test the interview questions, practice the open-ended interview process, and gain a frame of reference for conducting data collection. My pilot of the interview questions also helped me to plan for the study school interview scheduling process and to gain perspectives on the complexities associated with conducting interviews. I conducted one-on-one interviews with each of the two pilot study students to test the questions. I took notes to help me gauge the effectiveness of the questions and the mechanics of the interview sessions. I did not audio record the pilot interviews, nor did I retain the pilot interview data. The pilot interview sessions helped me to test the interview questions to discern which questions would best support the objectives of the study (Seidman, 2013).

Prior to conducting the interviews with each participant, I used a Participant Screening Questionnaire (See Appendix G) to help me to confirm that the participant meets the criteria for the study. Prior to each study interview, I provided participants with instructions for the study, which included the purpose of the study (Moustakas, 1994) (see Appendix L for Study Description and Instructions). All participants were 18 years and older. Prior to each participant's interview, I provided consent forms to the participants, and the participants gave to me signed forms (See Appendix H). Prior to the start of each interview session, I briefed the participant on the procedures for how I will keep their information confidential, and I briefed each participant on the responsibilities of the researcher and the participant (Moustakas, 1994). I

explained to participants that all identifying data will be removed and that the participant may withdraw from the study at any time (Moustakas, 1994). I also solicited information from each participant using a pre- and post-interview questionnaire to help me to initiate communication with the participants, to help me to confirm that the participant meets the criteria for the study, to provide contact information I can use for follow-up questions, and to gain data on the participants' initial thoughts and reflections (Seidman, 2013) (see Appendix M). Interviews took place in small flight briefing rooms, classrooms, or in conference rooms. I used two audio recorders in each interview and focus group to ensure good capture of data and to guard against a mechanical failure of one device. I used a professional transcribing service to transcribe the interview and focus group sessions. In accordance with my member checking procedures, I sent the transcripts of the respective one-on-one interviews to each participant to have them review and provide additional input or changes. None of the participants had any changes to provide. I utilized the post-interview questionnaire to obtain participants thoughts and reflections following the interview. Of the fifteen participants, I received eleven completed pre-interview questionnaires, and of those eleven, I received seven completed post-interview questionnaires.

The Researcher's Role

As the human instrument in this study and someone who is deeply interested in the issue, it was important for me to practice frequent reflection on my own history and biases to ensure I approached the questions capable of taking a fresh look (Moustakas, 1994). In my desire to conduct a good and worthwhile study, I focused on conducting myself with integrity, dedication to sound research principles, and with a goal to learn as much as I can throughout the process. I strove to view the problem without preconceived judgment and without casual comparison to ordinary and normal ways of perceiving (Moustakas, 1994). Because I have a long history in

professional aviation, I know that I brought some bias into the study. I strove to counteract my biases by using thoughtful reflection to remain open to what is revealed through fresh observation and setting aside personal opinion (Moustakas, 1994). Because I am an administrator in the collegiate aviation program at my university, I conducted the study at institutions with which I have no affiliation or relationship. I had no prior relationship with the participants of the study.

Throughout the study, I maintained awareness that as the participants describe their experiences in a collegiate professional pilot degree program, those experiences will enter my consciousness and mingle with my own knowledge and experiences. Comparing their experiences with my own experiences helped me to understand what they are saying, but at the same time I strove to intentionally bracket out prejudgments of what their experiences may mean to them (Moustakas, 1994). Rationally, I may believe that everyone regardless of background approaches and experiences a flying education and training experience in the same way, but the experience encompasses more than learning the required knowledge and skills of flying aircraft. The flight student experience includes interactions with others, beliefs about what others perceive, and learning how to make critical decisions in stressful situations. Using the Epoche process, I sought understanding of my own thoughts before seeking to reflect on the thoughts of others (Moustakas, 1994). I also reflected back to a time when I was a flight student, and I worked to set aside my thoughts about the roles I have had in positions of relative power that comes from organizational positions of authority as well as experience (Moustakas, 1994). I anticipated that as I sought to learn the experiences of the underrepresented student, I would come to further understand my own experiences relating to the phenomenon (Moustakas, 1994).

As a faculty member and administrator at a collegiate aeronautics school, I interact daily with aviation students, faculty, and staff. I also interact on a regular basis with members of the professional aviation industry. I was also an administrator and instructor for two years at a Department of Defense training school for military officers and government civilian employees. I served a career in the U.S. Air Force in multiple roles, primarily in military aviation. All of my aviation career roles have been in environments that are majority White male. I have a Bachelor's degree in aeronautical and astronautical engineering and a Master's degree in aeronautical science. I earned U.S. Air Force certifications as a flight instructor and evaluator, and I have Federal Aviation Administration certifications as a commercial pilot and flight instructor. I have a passion for flying aircraft and teaching others to fly. I came into this study as a White male professional aviator and educator seeking to learn as much as possible the experiences of underrepresented students in aviation. As a White male researcher of the experiences of underrepresented students, I strove to remain aware of my power role as a collegiate administrator and as one of the gender and racial majority in the aviation career field (Seidman, 2013).

Data Collection

The data for this phenomenological investigation are the lived human experiences of being an underrepresented collegiate professional pilot student (van Manen, 1990). Data for the study are from interviews, focus groups, participant questionnaires and personal written reflections. Creswell (2013) explained that qualitative researchers use triangulation, which is the use of “multiple and different sources, methods, investigators, and theories” (p. 251) for the purpose of comparing different types of evidence and providing validity to the findings. The goal of phenomenological data collection was to obtain information that permits the researcher to

fully describe the meaning of the phenomenon as experienced by a small number of individuals and that which allows full emergence of the essence of the phenomenon being studied (Creswell, 2013; Giorgi, 1985; 2009; Moustakas, 1994). Gathering data in multiple ways from numerous sources is to assist in creating a rich description of the phenomenon.

Interviews

The primary method of data collection was individual interviews (Giorgi, 2009; Moustakas, 1994). The goal of the interview was to obtain a complete description of each participant's experience (Giorgi, 2009). Data collection in a phenomenological investigation is typically accomplished by conducting long and in-depth interviews, informally and interactively, with open-ended questions (Moustakas, 1994). In-depth interviews should be used to reconstruct the experience of the participant and further explore the meaning of the experience (Seidman, 2013). The open-ended question allows participants to reflect and comment on any aspect of the experience that may be relevant and that they believe is important to their own experience (Seidman, 2013). The key to effective interviewing is listening closely to what each participant is saying, to draw out details of the experience in the answers, and to formulate follow-up questions based on the participant's answers (Seidman, 2013). The purpose of the in-depth interview was to gain understanding of "the lived experience of other people and the meaning they make of that experience" (Seidman, 2013, p. 9). The primary goal for each interview was for the participant to be able to focus in an honest and comprehensive manner on the experience of being an underrepresented student in the collegiate aviation program and to express that experience in words (Moustakas, 1994).

I conducted all interviews utilizing open-ended questions to enable a dialog with which to build upon and explore the participant's responses, thereby reconstructing the participant's

experience (Moustakas, 1994; Seidman, 2013). I developed interview questions that addressed the two theories that ground this study. I conducted all of the interviews in school provided classrooms, flight briefing rooms or conference rooms, and I ensured that each participant was comfortable with the setting (Seidman, 2013). Each place of interview afforded privacy and quietness to allow the participants to speak freely and to ensure clear audio recording (Seidman, 2013).

During each interview, I used an interview guide (see Appendix I), which contains the interview questions with space to write notes (Creswell, 2013). I placed two audio-recording devices on the table between myself and the participant. I tested the audio devices prior to the start of each interview to ensure they were working properly and recording each person's voice well (Seidman, 2013). I sent the audio recordings to a professional transcribing service, which returned the written transcriptions by email. I saved each transcribed interview as a Word Document file.

At the beginning of each interview, I introduced myself and restated the purpose of the study. I reconfirmed permission to audio-record the interview and reminded the participants that their responses will be kept confidential. I also reminded them that I may wish to contact them for follow-up interviews if necessary, and asked them if they would be willing to review transcripts of their interviews for accuracy. Finally, I ensured that I received a signed written consent form. The interview questioning began with questions regarding personal information related to their academic progress in their degree including academic major, current FAA pilot rating, and year in school as a way to open the dialog.

The interview process continued with the participant describing how they became interested in pursuing a flying career, whether it was due to their family experience, school

experience, or something else (Seidman, 2013). The interview questions continued with how the participant came to an aviation education and training institution of higher learning, which would provide information for reconstructing the development of their career aspirations (Seidman, 2013). To situate the participants within their lived experiences, I asked the participants to describe in detail what they do on a daily and weekly basis as aviation students and how they interact with their fellow students and their teachers (Seidman, 2013). I asked them to relate stories about their typical day as a student (Seidman, 2013). Finally, I asked the participants to reflect on the meaning of their experience as an aviation student and as an underrepresented aviation student (Seidman, 2013). My goal was to draw out stories that describe their lived experience.

Pre- and Post-interview Questionnaire

Prior to the start of the interview sessions, I asked the participants to complete a pre-interview questionnaire (See Appendix M). In the first section of the questionnaire participants recorded demographic data including age, year in school, academic major, FAA pilot rating, marital status, gender and race, and contact information. In the second section, the participants wrote their personal thoughts on what it means to be an underrepresented student in their collegiate aviation program. Van Manen (1990) suggests that participants may write about a personal experience regarding the phenomenon as a way of fixing their thoughts on paper and influencing them to reflectively consider normal daily occurrences. Following the completion of the interviews and the focus group, I asked participants to write their thoughts and reflections on the subject on their own time and return their completed questionnaire to me. Written reflections captured any thoughts the participants may have before and after the interviews. Particularly, after the interview sessions, participants may have more to say upon reflection, which could

prove to be significant data. In my instructions to participants I encouraged them to write informally. I also instructed the participants that they could give me hand-written reflections or they could send their written reflections by email. I converted all the written reflections to word document computer files, and I removed actual names and any other identifying information from the documents.

Focus Groups

I conducted one focus group session with two study participants at one of the universities. I was unable to schedule a focus group session at the other two universities due to the students' varied and busy schedules. The purpose of the focus group interview was to collect information that may emerge through the interactions of the participants who have similar experiences (Creswell, 2013; Patton, 2002). The focus group format allowed each participant to hear the responses of others who have shared the same experience and to make additional comments based on the interactions, and it allowed participants to reflect on their own views as they mentally processed the views expressed by others (Patton, 2002). The focus group questions were open-ended, and I facilitated a semi-structured or unstructured approach. The goal was to build on previous interviews to draw out additional stories on their lived experience. As the focus group moderator, I was careful to not dominate the discussion, and to encourage input and discussion among all participants in the focus groups. I used the same audio-recording devices in the focus group session and the same professional transcribing service. I conducted focus group session in the same room, in this case a conference room, as I did with the one-on-one interviews at that particular university. The audio recordings were very clear and understandable.

Researcher Journaling

I kept an electronic journal of my reflections on the information gathered by hearing and seeing (See Appendix P for sample reflective journaling). The goal of personal reflective journaling was to help me recognize personal biases or preconceived notions that may enter into my thinking as I collected the data, and it allowed me to more effectively bracket out my preconceived biases and personal experiences through the technique of Epoche (Moustakas, 1994). The focus of the Epoche process was to perceive each day as a new day of learning the phenomenon and to look at the information from a fresh perspective (Moustakas, 1994). Van Manen (1990, p. 89) said, “self-reflection is the way in which pedagogy reflects on itself while serving others.” The general process may be accomplished through reflective-meditation in which prejudgments are identified, written, and removed from the analysis (Moustakas, 1994). I maintained the data collection journal on electronic Word Documents and kept it stored in a computer file.

I wrote a personal description of my lived experience as an aviation student during various phases of my life (van Manen, 1990). Of course, my perspective is not as an underrepresented student, but as one of the racial and gender majority in the aviation field. Writing a personal description helped me to better understand what I may learn in terms of human experiences (van Manen, 1990).

Data Analysis

The data analysis created a rich, thick description of the phenomenon (Moustakas, 1994). For this transcendental study, the analysis is a descriptive analysis, and not an interpretive analysis, which would go beyond what is given purely by the participants (Giorgi, 2009). Utilizing phenomenological methods outlined by Giorgi (1985; 2009) and Moustakas (1994), I

conducted the analysis in a manner to (a) maintain a descriptive focus; (b) employ phenomenological reduction to bracket out personal biases and prejudices; (c) search for essences by utilizing free imaginative variation, and (d) be intentional in utilizing a reflective process. Through the data analysis process, I focused on learning the meaning of the phenomenon based purely on what the data presents (Giorgi, 2009). The end result is a rich articulation of what the data presents and is a product that others may easily evaluate (Giorgi, 2009).

Effective data analysis begins with a good system of organizing the data (Seidman, 2013). I employed a computer filing system that enabled me to keep track of forms, audiotapes, transcripts, and other relevant documents keeping them readily accessible and secure (Seidman, 2013). I informed the participants on the measures being taken to ensure the transcriber will not misuse the information (Seidman, 2013). When I received transcripts from the professional transcribing service, I named them and placed them into computer files (See Appendix O for sample participant interview transcript). I organized all of the data and data analysis products into computer files that are labeled for organization and tracking (Creswell, 2013; Moustakas, 1994). I filed and maintained data from each participant in computer file folders. I made a written description of my personal experiences, incorporating my written personal reflections to form the basis for bracketing out those experiences and focusing on the participants' responses (Creswell, 2013).

As a guide to my data analysis, I used a process, which is Moustakas' modification of van Kaam's method of analysis (Moustakas, 1994). My expanded description of each step of my data analysis process follows.

Step 1 – listen to the audio recordings while correcting the transcript of the interview or focus group session

Step 2 – listen to audio recordings while reading each interview and focus group transcript – write a post-transcript review memo for each transcript (memoing)

Step 3 – read the entire transcript and defrag the extraneous words, ums, like, kinda, etc.

This step helps to remind me about the person and places me back into the interview setting, as I hear the voice again in my reading without the audio recording.

Step 4 – read the entire transcript – write notes and a summary of the participant's thoughts and experiences (memoing). This step also reminds me about the person and places me back into the interview setting, as I hear the participant's voice again in my reading. The step also helps me to capture reflective thoughts and a summary of the person's experience, which I captured in my reflective notes.

Step 5 – break the transcript into separate and individual horizon statements.

Step 6 – reduce the statements to those that are relevant to the experience (horizontalization).

In this step, following Moustakas (1994) instructions for listing every statement that is relevant to the experience, I kept many statements in the conversation. I was afraid to discard statements that I might later view as being relevant. I treated each statement as one that Moustakas (1994, p. 123) said “holds equal value and contributes to an understanding of the nature and meaning” of the experience. The interview questions covered quite a bit of ground due to the nature of the investigation in relation to the theories involved so my horizon was quite large. Regardless, every statement had the potential to shed light on the meaning of being an underrepresented person in the realm of collegiate aviation.

Step 7 – Test each expression for two requirements: 1) does the statement contain a moment of the experience, and 2) is it possible to label the statement? The labeled statements are the invariant constituents of the experience.

Step 8 – define the labels as codes.

Step 9 – Cluster and thematize the invariant constituents. Consolidate similar labels into a smaller number of codes, and then develop thematic labels. Organize the statements into their thematic label – clustered invariant constituents.

Step 10 – Validate the invariant constituents by checking them and their accompanying theme against the complete record of the participant. Provide a thematic portrayal of the experience.

Step 11 – construct an individual textural description of the experience.

Step. 12 – construct an individual structural description of the experience based on the individual textural description and imaginative variation.

Step. 13 – construct an individual textural-structural of the meanings and essences of the experience, incorporating the invariant constituents and themes.

Step 14 – develop a composite textural-structural description of the meanings and essences of the experience

I gained a sense of the data as a whole by reading each transcripts several times and writing notes on ideas and key concepts (Creswell, 2013; Giorgi, 2009). As I read each transcript, I regarded every participant statement as being relevant to the topic and question and equal in value in a process that Moustakas (1994) calls horizontalization. Giorgi (2009) instructs that reading of the description is also accomplished by the manner of phenomenological reduction, which is a way of discriminating lifeworld aspects from other specific or phenomenal

aspects. Reading of the transcripts also enabled me to consciously place myself back into the interview room, and I was able to remember the participant, the participant's voice, and many of the details of what occurred. After reading through a transcript, I began to reduce the document to its essential elements. First, I removed extraneous words and expressions, such as 'um' in a process I called defragging. Next, I reduced the document further to the potential horizon statements. I then reduced the horizon statements to those which pertain to the phenomenon which are those significant phrases or sentences that pertain to the lived experience of being in a collegiate aviation program. Next, I began to look for common meaning statements or meaning units in a process that allows me to describe what the participants experienced and how they experienced it (Creswell, 2013; Giorgi, 2009; Moustakas, 1994).

Over the course of the first few transcripts, I identified over 50 codes that I ascribed to the various meaning statements. As I continued through the transcripts, I reduced the number of codes to 49 by combining codes of similar meaning. Through the process of free imaginative variation, I developed a shorter list of ten constituent meaning units that relate to the meanings. From that list of ten constituent meaning units, I developed a list of five common categories or themes, and I assigned labels to them (Creswell, 2013; Giorgi, 2009; Moustakas, 1994). Van Manen (1990, p. 90) describes themes saying, "Themes have phenomenological power when they allow us to proceed with the phenomenological descriptions." Themes should be particular elements that occur frequently in the transcribed text, but they should also serve to encompass a "fuller description of the structure of a lived experience" (van Manen, 1990, p. 92). The goal was to identify themes that describe the phenomenon being investigated and that are essential to making the phenomenon what it is (van Manen, 1990).

The phenomenological analysis process is a way of pulling key phenomenal characteristics out of the described experience (Giorgi, 2009). Describing the first step of phenomenological analysis, Moustakas (1994) advises that each statement should be given equal value. By reading the verbatim statements, I was able to reflectively search for significant meanings that may appear in the statements (Moustakas, 1994). Seidman (2013) instructs that every statement should be looked at with an open mind to see what emerges from the text. Data saturation occurs when no new themes emerge from the texts. I believe I hit data saturation and a good list of themes after analyzing about eight to ten interview transcripts. Once the common themes and meanings became clear, I was able to visualize the construction of a rich description of the lived experience that provides the essence of the phenomenon (Moustakas, 1994).

The analysis continued with the construction of individual textural descriptions and individual structural descriptions. Finally, for each participant, I created an individual structural-textural description. With themes, significant responses and textural descriptions, I formulated a composite structural-textural description of the phenomenon for the purpose of capturing and describing the essence of the experience, i.e. “what” the participants experienced and “how” they experienced it (Creswell, 2013; Moustakas, 1994). Moustakas (1994) explains the process of imaginative variation to formulate an overall composite textural description from the composite textural description of each participant. This process assisted me in fully describing the experience and presenting it in narrative form for others to evaluate (Creswell, 2013). The overall goal of the transcendental phenomenological analysis was to fully know and display the essence of the experience in the form of a phenomenological description (van Manen, 1990). This final composite narrative represents the group’s experience as a whole (Moustakas, 1994)

while maintaining the universal qualities and the true essence of the experience (van Manen, 1990).

Trustworthiness

This section describes the procedures used to increase the study's credibility, dependability, confirmability, and transferability. The process of checking results included a focus on maintaining an ethical relationship with the participants by keeping an open dialog, encouraging their voices, and reflecting on my own thoughts on the subject (Creswell, 2013).

Credibility

Credibility of the study and the results first and foremost depends on the rigor of methods chosen and applied in data collection and in analysis (Patton, 2002). Preconceived notions and biases may negatively affect credibility in a study that seeks new insights, thereby making the Epoche process a critical element of the study (Patton, 2002).

Different factors may affect the credibility of the results. Participants could possibly have different views of their experience depending on year in school, how long they have been in the program, time of year, particular times of their school career, different life experiences and upbringing, and so on. By using multiple university settings and multiple participants, I was able to check the responses of each of the participants against each other. I could be assured that the responses received were not indicative of only one university environment. By using multiple data collection techniques, including written reflection, I was able to place participant comments in context (Seidman, 2013). Although the backgrounds and lives of each participant may be different, I was keen to look for common patterns that connect their experiences (Seidman, 2013). Data analysis revealed quite a bit of similarity in participant experiences among the three

universities. In addition, I kept my guiding theories in mind to reflect on how the participant's experiences aligned with the theories.

I utilized a process of triangulation by using different data collection techniques including personal journaling, written reflections, interviews and focus groups to check response consistency among those varying formats (Creswell, 2013; Patton, 2002). There is not much literature on the specific phenomenon of underrepresented students in a collegiate aviation program, but I compered the available literature on how young people choose careers, particularly in STEM fields to the conduct of this study. Using different collection techniques should confirm the genuineness of responses. In addition, collecting data from three different institutions enabled me to further remove any potential effects of single institution bias and culture. Comparison to literature on self-efficacy and on critical theory assisted in confirming the reliability and credibility of the results and guided the course of the data collection (Patton, 2002).

I employed the strategy of member checking by asking the participants to review the findings and interpretations (Creswell, 2013; Patton, 2002) (See Appendix N for member checking procedures). Member checking allows the participants to judge and comment on the accuracy and credibility of the accounts (Creswell, 2013; Patton, 2002). The participants are able to provide the most realistic feedback on the descriptions made by the researcher. I asked participants to read the transcripts of their interview responses and to modify their statements as appropriate to their experience. Of the 15 participants, 4 reviewed and responded to my request, and all of those replied that they had no corrections or further inputs. I sent my findings to each of the participants for review and comment. Two participants reviewed my results after analysis, and provided agreement with the findings with no suggestions or recommendations. Finally, I

solicited validation by consulting with other experts in the field and by continuously comparing the findings with the theoretical constructs (Creswell, 2013; Patton, 2002).

Dependability and Confirmability

I utilized a process of peer checks during the research process and after constructing findings and interpretations to seek consensual validation through the other opinions (Creswell, 2013). The peer review/debriefing process is a review of the information by a peer that includes a discussion session in which the reviewer listens to the researcher and asks questions regarding the methods, meanings, and interpretations (Creswell, 2013). Because the researcher typically becomes very close to the situation and experience of the participants, a peer review is necessary to check the dependability and confirmability of the findings. I maintained written accounts of the peer review sessions (Creswell, 2013). A review by one peer colleague was in general agreement with the study's finding and conclusions.

Transferability

Thick and rich descriptions of the experiences of each of the students allows other aviation scholars to validate the results (Creswell, 2013). The detailed descriptions also facilitate comparison with students in other settings, namely other collegiate programs (Creswell, 2013).

Ethical Considerations

Aviation is my passion and career, so I had to ensure that I did not allow biases to enter the research. I also strove to avoid sharing personal experiences with participants, which may negatively impact the essential bracketing that should be accomplished (Creswell, 2013). I obtained IRB approval from my own institution and from the data collection institutions prior to any data collection. I obtained permission from data collection institutions and from participants in the form of written consent prior to any data collection. I ensured that I obtained clear

agreement with the participants and I maintained their confidentiality and informed consent (Moustakas, 1994). In addition, I provided full disclosure of the nature, purpose, and requirements of the research being conducted (Moustakas, 1994). There is no reason to identify any of the participants in the study or the institution, and therefore, the study will keep the participants and institutions anonymous by incorporating numbers and aliases with names and a pseudonym for each institution (Creswell, 2013). To avoid a vested interest, the study is designed to have general applicability to higher education institutions across the nation, and not be a reflection on the site institution.

I provided a detailed written and oral briefing on the purpose of the study and the methods used to each participant and respective school administrator, allowing them to make a well-informed choice to participate and support. I gave each participant a token gift card of \$10.00 to show my appreciation for participating in the study. I used no deception during the course of the study, and I remained completely open and transparent throughout the process (Creswell, 2013). I maintained an acute awareness of a perception of power imbalance (Creswell, 2013) that exists due to my being a college administrator, albeit at a different institution, and as an experienced White male aviator. Each participant understood the option to freely opt out of the study at any time (Seidman, 2013), and interviews could be terminated at any time at the desire of the participant (Moustakas, 1994). Seidman (2013, p. 99) explained that the relationship between the researcher and the participant should be “marked by respect, interest, attention, and good manners on the part of the interviewer”, and it should be of a professional nature. It must be understood that phenomenological research of this nature may have immediate and lingering effects on the participants due to intense conversations and their deep reflection on their own lived experiences. Van Manen (1990) explained that the effects

may bring improvements to the lives of the participants or may have ill effects if the interviews are not accomplished well.

I informed more than one faculty member in the selected universities on the study purpose and methods for purpose of added accountability. I asked research participants to review and confirm or alter the collected data and interpretations of their responses (Moustakas, 1994). I maintained integrity in recording, securing, interpreting, and reporting all data and data analyses (Creswell, 2013). I maintained data on computer files that are password protected. I carefully secured audio recordings when not in use. Data was not shared with others except as outlined in this chapter. I explained the potential benefits of the study to the participants, including the creation of new knowledge regarding the topic and a clearer understanding of meanings relative to the research questions (Moustakas, 1994). The results and published study will be made available to the public (Moustakas, 1994).

Summary

The research study utilized a transcendental phenomenological research design and methodology. This chapter provided the rationale for using a transcendental phenomenological design, and it outlined and described the procedures and methods as suggested by Giorgi, (1985; 2009) and Moustakas (1994). Because of my role at my institution of higher learning (IHL), I solicited suitable sites at three different IHLs. The chapter identified the parameters for the setting and selection of participants with the appropriate rationale. Data collection sources were students in three separate collegiate aviation programs utilizing interviews, a focus group, written reflections, and researcher journaling. The chapter details the specific data collection procedures and the phenomenological data analysis procedures as described by Giorgi (1985; 2009) and

Moustakas (1994). Finally, the chapter detailed procedures to enhance and ensure trustworthiness along with identification and rationalization of ethical considerations.

CHAPTER FOUR: FINDINGS

Overview

The purpose of this transcendental phenomenological study was to explore what it means to be an underrepresented student in a collegiate professional pilot degree program. Chapter four presents the findings of the study. The chapter begins with a short description of each of the fifteen study participants using pseudonyms for their names. Next, the chapter provides a narrative of the theme development, which occurred as a result of the data analysis process and using phenomenological reflection and imaginative variation. The theme development section contains an explanation of each of the five themes using participant data from interviews, a focus group and pre- and post-interview questionnaires. The next section provides narrative answers to the study's research questions. The answer to the central question is a composite rich and thick description of the lived experience organized in the five themes. Following the rich and thick description are concise narrative answers to the sub-questions.

Participants

The following is a description of each of the fifteen study participants using pseudonyms for their names. Each participant is a student in one of the three study schools.

Andrew

Andrew is a Hispanic male who is a senior at his school. He has been at his school three years after transferring from another university. He has his commercial multi-engine and single-engine aircraft ratings, and he hopes to become an airline pilot. Andrew moved to the United States from another country when he was younger. Growing up, he believed he would not be able to attend college due to financial reasons. His opportunity to attend college came through the assistance of others and through sports scholarships, and although he had developed an

interest in aviation at that time, he had no plans to pursue aviation as a career. During his first year in a previous college he developed an interest in pursuing a career as a professional pilot. After seeking advice on how to pursue his dream, he completed his second year at a community college and then transferred to his current university program. His parents supported and encouraged him throughout the process, and he acknowledged knowing how financially difficult it would be to pursue the program. He said his initial interest in aviation came from seeing airplanes flying overhead and wondering what the world looks like from above and how are airplanes able to fly. He wanted to experience not just flight, but being the pilot flying the aircraft.

Bailey

Bailey is a White female who is a junior at her school. She is completing her first year at this school after spending two years at another university. She has her private pilot aircraft rating. Her exposure to aviation first came through her father who works in the aviation field but not as a pilot. A colleague of her father took her flying, and she fell in love with it. After two years at community college, she decided to turn her love for flying into a career pursuit.

Caleb

Caleb is a Black male who is a sophomore at his school. He is completing his second year at his school. Caleb's mother planted the seed for his career as a pilot, and his interest grew when his father took him to an airshow at age twelve and he became fascinated by the aerobatic aircraft. He lost sight of an aviation career for a while and he joined the military. After his time in the military, he found his way back to aviation and decided to pursue the career in a collegiate program. His desire is to become an airline pilot.

Emily

Emily is a White female who is a freshman at her school. She is completing her first year at this university, and she has her private pilot aircraft rating. Emily had a desire to become a doctor most of her growing years. Her exposure to aviation was through airline flights with her family and through her sister who is a flight attendant. She thought that being a pilot would be a great job, but she did not believe it was something she could do and she did not know how one becomes a pilot. Her sister's boyfriend who is an airline pilot advised her and she decided to pursue the career in a collegiate program. She hopes to become an airline pilot.

Edward

Edward is a Black male who is a sophomore at his school. He has been at his school for two years, and he has his private pilot aircraft rating. Edward grew up in a country in Africa, and he lived in an area where commercial aircraft frequently passed overhead while flying in and out of a major airport. Watching the aircraft flying overhead sparked his interest in flying. He came to the U.S. at age thirteen and he continued to be interested in aviation. He joined the U.S. Army, and he later learned that he could pursue a pilot career through a collegiate program using his military education benefits.

Allison

Allison is a White female who is a junior at her school. She has been at her school for two years, and she has a certified flight instructor rating. Allison's mother was in the U.S. Air Force, so she had the experience of being around military aviation. When she was a student in middle school, she took a trip on military transport aircraft with her mom, and it was on that flight in a KC-135 that she decided that she wanted to fly aircraft. She took a flight in a Cessna

172 with a family friend who is an airline pilot and that experience sealed her interest. She saw the family friend as a role model for what she wants to do.

Fran

Fran is a White female who is a junior at her school. She has been at her school three years, and she has a certified flight instructor instrument rating. Fran's interest in flying sparked when she watched videos of fighter jets flying during her middle school's Veteran's Day activities. Later she took a discovery flight and her interest was sealed. She was able to gain experience in aviation in high school working as an intern at a local FBO.

Frank

Frank is a Black male who is a sophomore at his school. He has been at his school two years. Frank decided he wanted to be a pilot when he took his first commercial flight with his family when he was seven years old. On that trip he became fascinated with aircraft, and the fascination stayed with him throughout his growing years. He participated in Organization of Black Airline Pilots (OBAP) flight activities when he was in high school.

Freda

Freda is a White female who is a senior at her school. She has been at her school three years, and she has a certified flight instructor rating. Freda's grandfather and father are pilots, and she sees them as doing something she wants to do. Her grandfather was a fighter pilot, and she has had a desire to be a fighter pilot since she was at a young age.

Faye

Faye is a White female who is a senior at her school. She has been at her school five years, and she has her commercial pilot aircraft rating. Faye's father was a pilot, but he had not flown for several years. She expressed an interest in flying at age twelve, and he took her on a

flight after achieving a pilot requalification. She loved the flight and became fascinated with airplanes, and that sealed her interest in becoming a pilot. At the time she did not know that being a pilot could be a career option for her. She thinks that sublimely she believed that only males are pilots in flying careers. She started her college in an aviation technology major, and a professor detecting that she appeared more interested in flying than designing guided her to the flight program.

Robert

Robert is a Hispanic male who is a junior at his school. He has been at his school three years, and he has his commercial multi-engine aircraft rating. He has always from a young age been interested in technology and in particular how aircraft work and fly. Initially, he did not pursue aviation, but after a couple years of pursuing another career, he knew he was in the wrong place, and he tracked back to aviation. He investigated military flying at first, but due to eyesight deficiencies he decided to pursue a collegiate aviation program.

Harvey

Harvey is a Black male who is a senior at his school. He has been at his school four years, and he has a certified flight instructor rating. Harvey's interest in becoming a pilot began when he saw a young airline pilot while he was traveling with his family in high school. His family frequently took trips by air, but this time the sight of a young airline pilot intrigued him, and he decided that he would like to be like that person. His family supported his declared interest and he researched available college programs.

Henry

Henry is a Black male who is a senior at his school. He has been at his school four years, and he has his private pilot and instrument aircraft ratings. Henry's flying interest sparked as a

young child when he saw an Air Force C-17 flying overhead, and he decided that is what he wanted to do. Later, his flying interest changed to wanting to become an airline pilot, and he found his collegiate program by researching online.

Hap

Hap is a Black male who is a senior at his school. He has been at his school four years, and he has his commercial pilot aircraft rating. Hap said he was afraid of flying, but on one family trip to Seattle when he was twelve years old, his fear of flying changed to a fascination for flying. He was fascinated with aircraft that could fly through clouds and arrive at the destination airport, and he was fascinated with the Boeing 787 aircraft he saw at the Boeing factory.

Hank

Hank is a Black male who is a senior at his school. He is completing two years at this school after transferring from another university. He has his private pilot aircraft rating. Hank's interest in flying started in flying remote control aircraft his mother gave to him. He loved the remote-control aircraft and he developed a desire to see what more there is to flying aircraft. He made his career decision after taking an introductory flight in a small aircraft and loving it.

Results

Of the fifteen participants, eleven participants completed the pre-interview questionnaire, and seven of those eleven participants completed the post-interview questionnaire. I sent the transcript of each interview to each of the respective participants and asked them to review their transcript. I instructed that they could modify their original answers from the interviews and they could add to their original answers. As co-researchers in this phenomenological study, the participants provide the meaning of the experience, and I wanted to capture any additional

thoughts they may have had since the interview sessions. Four of the fifteen participants responded, each of them replying with no changes or additional information.

I conducted one focus group with two participants at one of the universities. I included the data from the focus group transcript in the data analysis. Using the modified Van Kaam method of analysis outlined by Moustakas (1994), I analyzed the fifteen one-on-one interview transcripts and the one focus group transcript to identify common themes. Following the analysis of the interview and focus group transcripts, I analyzed and reviewed the pre-interview and post-interview questionnaires looking for new data and comparing for consistency. The next section describes and explains the analysis of data and the theme development process.

Theme Development

I named 49 codes during the text analysis of the fifteen interview transcripts and the one focus group transcript (See Appendix Q for the list of codes, their frequencies, and their definitions). Answers to the pre- and post-interview questionnaires were very much in line with participant interview answers, and the written answers provided excellent well-thought short statements that add to the richness of the descriptions. Because I developed the interview guide and questions in alignment with my research questions, the codes mostly developed in a pattern aligned with the research questions, which in turn are aligned with the two foundational theories. At first it appeared that the themes would simply be a rewording of the research questions. Despite that possibility, I maintained an open mind and I looked for commonalities among the 49 codes. Focusing on commonalities led me to grouping the 49 codes by color coding them into ten sub-categories (see Table 3 below). For example, I grouped codes that reflected career interest, development, desires and goals into a yellow category. I grouped codes that reflected

people supports into a green category. I continued the process of color grouping similar codes until I arrived at the ten sub-categories.

Table 3

Development and Identification of Ten Sub-categories from 49 Codes

Color Code	Total number of occurrences	Category label
Yellow	191	Interests, wants, desires, goals
Orange	37	Resource supports; environment
Green	178	People supports
Aqua	123	Confidence and self-efficacy
Purple	5	Exploration
Red	72	Passion for flying
Maroon	122	Persistence and drive
Brown	30	Barriers
Sky	96	Underrepresented? Didn't know. Consciousness of being in the minority group
Peach	315	Identity; physical characteristics

In considering and reflecting on the initial grouping of codes into ten sub-categories, I developed the following five possible thematic areas while maintaining a reflective perspective. The first initial possible thematic area was: passion for flight and flying, which deals with why people become interested in flying. The theme also includes career interest, desires, goals, inquiry, and the idea that interest in a flying career starts with a seed that is planted, watered, fertilized, and nurtured until it grows into a passion and a career. The second initial possible thematic area was: persistence, motivation and drive. This area deals with levels of self-confidence and development of self-confidence in pursuing the career, self-efficacy, and an idea related to relational thinking/drive verses rational thinking/drive. The third initial possible thematic area was: identity as an aviation student relative to who they are as an individual. This area deals with how they see themselves within their setting, being a representative of the

underrepresented group, and physical characteristics. The fourth initial possible thematic area was: the contextual environment that is their world, which includes supports, barriers, stresses, challenges, and the overall school environment. The fifth initial possible thematic area was: didn't know or think about being one of the few. The area includes a surprised response upon learning they were in the minority, not being concerned about being underrepresented in the career, and taking on a representational role.

Once I completed the step of developing five initial thematic areas and initial theme labels, I proceeded to group the horizon statements into invariant constituents under headings aligned with the five thematic areas. I accomplished this grouping of invariant constituents for each participant interview and for the focus group session. The process of reading and grouping led me to rename the five thematic areas with the following nomenclature to capture everything that may be contained within the thematic area (See Table 4 below): 1) passion for flight and flying; 2) relational thinking/drive verses rational thinking/drive; 3) how they see themselves within their setting and representative of the underrepresented group; 4) school environment, parent support, social supports, diverse or non-diverse environment, supportive environment, faculty and staff supports, and 5) didn't know or think about being one of the few – surprised response, not concerned about being underrepresented in the career – taking on a representational role, how they see themselves within their setting, representative of the underrepresented group. As I continued this process of analysis and reflection, I could already see correlation to the study's theoretical framework.

Table 4

Theme groupings

Color Code	Color Code	Color Code	Color Code	Theme grouping descriptors	Initial theme labels
				Interests, exploration, desires, goals, passion	passion for flight and flying
				Confidence, self-efficacy, persistence and drive, outcome expectations	relational thinking/drive verses rational thinking/drive
				Physical characteristics, identity	how they see themselves within their setting and representative of the underrepresented group
				Environment, supports, barriers	school environment, parent support, social supports, diverse or non-diverse environment, supportive environment, faculty and staff supports
				Underrepresented? Didn't know. Consciousness of being in the minority group. Representative of the underrepresented group	didn't know or think about being one of the few – surprised response, not concerned about being underrepresented in the career – taking on a representational role, how they see themselves within their setting, representative of the underrepresented group

Continuing to follow the Moustakas (1994) modification of the Van Kaam method of analysis of phenomenological data, I used the clustered invariant constituent statements to create individual textural descriptions and individual structural descriptions, each organized using the five initial thematic areas. From the two types of written descriptions, I created individual structural-textural descriptions for each participant still organized by the five thematic areas. I

accomplished these steps for each of the fifteen participants and for the focus group session to produce sixteen individual structural-textural descriptions.

I then used the foundational theories to assist in continuing to draw out and refine themes that describe the essence of the lived experience. Social cognitive career theory (SCCT) provided a framework for investigating how the cognitive-person (self-efficacy, outcome expectations, and goals) variables interact with a person's physical characteristics (e.g. gender and ethnicity) and contextual environment (e.g. social supports and barriers) to influence career development (Hayes et al., 2012; Lent et al., 2013). The first initial theme area contains the following elements: interests, exploration, desires, goals, and passion. The second initial theme area contains the following elements: confidence, self-efficacy, persistence and drive, and outcome expectations. The third initial theme area contains the following elements: physical characteristics and identity. The fourth initial theme area contains the following elements: environment, supports, barriers. The fifth initial theme area contains the following elements: underrepresented, but didn't know, consciousness of being in the minority group, and representative of the underrepresented group. Each of these theme areas align with the key elements of SCCT.

As I considered the SCCT correlation to the data, I also maintained an awareness of the critical theory (CT) framework. CT has evolved over the decades, but it is still a critique of societal effects on groups who have lower power and freedom due to the society's social, economic or political structures. A free society should allow freedom of choice and action for all citizens including self-determination and prosperity, but the result of such strivings is often a great deal of power and freedom for some and much less power and freedom for others (Horkheimer, 1972). Honneth (2009) explained that self-actualization of all members must be

interwoven into a common understanding for cooperative freedom and desire for the common good. In this construct, cooperative self-actualization requires the neglect of individual self-interests and the understanding and promotion of common interests (Honneth, 2009). One of the most interesting results in the study was an apparent environment in which generally everyone in a collegiate aviation program works together to help everyone succeed in their career goals regardless of background or physical characteristics. The common interest is flying aircraft, and although physical characteristics are readily apparent, individual backgrounds are generally not known by others.

Horkheimer (1972) believed that society's normal development depends on a critical attitude that is a protest against the normal order by those who lack self-determination. Therefore, CT is both a critique of the existing order and of the current struggle against the existing order (Horkheimer, 1972). With a desire for understanding and serving the needs of underprivileged groups and for promoting social justice for all, the career development field focuses on many elements of an increasingly diverse world (Brown & Lent, 2013). The results, as seen within the themes portray a desire throughout the collegiate education and training system for helping all students to succeed, regardless of gender or race. The results also revealed individual's intent on achieving career goals regardless of societal views, prejudices or barriers.

Occupations serve as a source of personal identity and self-evaluation, and they provide a basis and a stage for social relations (Bandura, Barbaranelli, Caprara, & Pastorelli, 2001). The workplace can be an environment that fosters a positive influence on a person's identity and behavior while encouraging a reciprocal relationship among peers (Brown & Lent, 2013). The themes that emerged from reflective analysis display common threads that deal with career desires, personal goals, social relations among peers and faculty, and how each of the

participants feel about their place in the program. As I continued a reflective process to further develop theme labels, I could clearly see the data filling in the pieces of the theoretical frame.

As I constructed each structural-textural description, I employed a process of imaginative variation to derive invariant constituents that captured the essence of each participant's experience. Moustakas (1994) instructed to employ imaginative variation "to seek possible meanings through the utilization of imagination, varying the frames of references, employing polarities and reversals, and approaching the phenomenon from divergent perspectives, different positions, roles, or functions" (pp. 97-98). A purpose of imaginative variation is to formulate structural themes from the textural descriptions (Moustakas, 1994). In this use of imaginative variation, I considered and reflected on what each of the invariant constituents was saying about the experience, and I studied and reflected on the codes that I had created in the coding process. Giorgi (2009) explained that constituents are not independent elements within a structure, but are elements that represent a particular place in the structure. These reflectively developed invariant constituents represent meaning elements that have a particular place in the combined structure. This process allowed me to focus on the suitability of the thematic areas and to further reflect on the relevance of the invariant constituents to the thematic areas and on the drawing out of the essence of the experience.

I combined and consolidated these newly developed invariant constituent statements (See Appendix R for the list of invariant constituents or horizons organized by theme). Throughout the development of a description of the experience, I continued to exercise imaginative variation to further refine my list of invariant constituents. I recorded reflective notes on meanings, and I regrouped some of the invariant constituents into different thematic areas. I also recorded the number of participants that exhibited each of the newly developed invariant constituents, in other

words the frequency of each invariant constituent (See Appendix S which records the frequency of each invariant constituent by theme). Regrouping of ideas and continued reflecting brought revised understanding and revised theme names to the surface. The following themes are the result of this reflective process (See Table 5). Once I settled on the themes listed in Table 5, I created a composite structural-textural description for all fifteen of the participants. The narrative that follows provides further explanation of the development of each thematic area.

Table 5

Themes

Theme Number	Theme Label	RQ Correlation
Theme 1	Interest/passion for flying – filters their identity as an underrepresented student	All
Theme 2	Relational thinking/drive verses rational thinking/drive – aspirations	All
Theme 3	Environment and career supports	All
Theme 4	Initial realization and reactions to being an underrepresented student	All
Theme 5	Developing behavior responses	All

Theme 1 – Interest/passion for flying – filters their identity as an underrepresented student. Due to my own passion for flying and my own career as a professional pilot, I knew that I would have bias in the area of passion for flying, and I anticipated that I would find a passion theme. Knowing this, I attempted to bracket my own career passion from the expressed experiences of the participants as I asked them to describe how they became interested in flying, and how they developed an interest for a flying career. A principle of SCCT is that people become interested in careers through many varied factors including person, environment, and learning or experiential variables (Brown & Lent, 2013). According to SCCT, interests are “the

extent to which people like particular activities that are available within given school or work contexts” (Lent et al., 2013, p. 23). In determining the lived experience of a collegiate aviation student preparing for a professional pilot career it is important to know how the student became interested in flying aircraft and how the student feels about the activity and career. Although I know my own experience, I did not know what the relationship would be between the love and desire for flying, wanting to fly for a career, and being in an underrepresented group in the activity.

This theme addresses the first three sub-questions in terms of how people develop interest in a particular career, and their thoughts and behaviors as they work toward attaining their career goals. The theme also addresses the fourth sub-question in terms of how minority groups strive to achieve self-actualization in careers dominated by one particular group. The theme captures the commonality of responses regarding how each of the participants became interested in flying aircraft for a career and then pursued that interest. Most of the participants had no background in aviation, and their families had no background in aviation, yet they developed an interest and fascination with flying that eventually developed into a pursuit and a passion. The theme captures responses that are related to their career development in terms of interests, exploration, desires, goals, and passion.

Young people become interested in flying aircraft by seeing aircraft flying overhead, by going to an airshow, or by flying in an aircraft. Career interest or passion can come from a variety of sources. Frequently, a seed is planted at a young age from a particular experience or exposure to aviation. The experience or exposure does not influence everyone to take hold of flying as a passion, but to the young person with whom it does take hold, it can be the driving force that launches the pursuit of a goal of flying and an intense desire to fly.

Through the imaginative variation process, I sifted out three steps that go into the development of an interest in flying to a desire to pursue flying as a career. The first step is something that sparks the interest in flight. This something can be a flight in an aircraft, simply seeing aircraft flying, attending an airshow, or one of many events that a young person sees or experiences that sparks the interest. The second step is having another person encourage or support the interest, or further the interest by providing advice and mentoring or being a role model. The person can be a parent, another family member, a friend or colleague, a teacher, or even a college faculty member or advisor. The third step includes someone to show them the possibilities and to show them the way. People who have no experience in flying careers may not know how one is able to have such a career. In many cases, the young person may conduct research on their own, but in general, they also seek out or encounter helpers along the way.

Every participant expressed an intense love for flying. None of them used the word passion on their own, but I could hear and see passion in the way they all described their love for flying including statements like, “I cannot imagine doing anything else”. The development of the interest appears to transcend physical characteristics of race and gender. For those who develop the flying passion, it becomes a dream that must be fulfilled, and there is generally no thought by the participants that they will not be able to do it. Many said they cannot imagine doing anything else. Also, many of the participants did not know or consider that they will be part of a minority group. They just want to fly. Those who want to fly seem to want to see the world from a different perspective. They don’t think it strange that they want to fly even though others may question their career decision.

Essentially, I could hear each participant saying, “I love flying and my identity and background are not barriers or inhibitors to pursuing my dream for flying.” Each one of the

participants expressed an intense will to achieve their goal of a professional flying career, many of them expressing that they saw no other option for themselves. All of them as students experienced and continue to experience struggles and doubts of some form, but it appears that their love for flying, their passion for flight, and their desire to fly as a career is the trump card that overcomes their struggles. They do not see their future career as a job, but as something they will truly love to do, and they feel special because they are able to do it.

The participants in this study came from many different types of family backgrounds. Some of the participants had much exposure to flying and aviation while growing up, and some of the participants are the only pilots in their families, and in some cases, they are the first in their families to attend college. Every participant related an experience that seemed for them to spark the interest in flying. Harvey is an African American whose family frequently traveled by commercial airline on vacation trips, but there are no other pilots in his family. On one trip he took note of an airline pilot in the airport who looked very young to him, and he thought to himself, “Wow, how can someone that young go out and just do something so incredible like flying. Well, if he can do that, then why can't I? Wow, I wanna do something that incredible.” At that point, he started to look into how someone would become a professional pilot and decided, “Hey I wanna become a pilot, I wanna make this reality.” He spoke to his parents, and they said they would support him in his desires. He said he had no thought of becoming a pilot before that experience. He also related, “...just the thought of just being able to go up to 18,000 feet in the jet. And, I don't know, the whole idea just said, wow, that's amazing. I really wanna do that one day. And so, I just decided to go out and do it.” In his fourth year at his school, he said,

Right now I'm still loving it a lot. I feel like I'm pretty much right there at the end, like trying to reach that big goal from that I had since high school, and being able to get there. So, I mean my passion's there, but I feel like it will probably skyrocket even more the further I get, go through CFI and become better instructing since I mean, it is still like me, my first time instructing, so I'm still a little nervous with that.

He said flying airplanes is something he was born to do. He loves every aspect of flight, saying, "Oh, it's, it's a great feeling. I really love the surge and the adrenaline from being able to pull out onto the runway and go full power and take off and come in to land." He relates the passion as, "I felt like it was a passion that I wanted to go and achieve that, to do what that guy was doing at first, and then as time progressed and I started getting better and understanding more things for aviation, I felt like it, yeah this was what I was set out and born to do."

Andrew is a Hispanic male. His career interest and passion developed over time due to his experiences in traveling and his exposure to seeing aircraft flying overhead while growing up and wondering what it was like to be a pilot. He expressed his desire to learn by pondering, "How are airplanes flying and how are we able to accomplish that? And what I wanted, really to find out is what is the perspective that pilots or people who are in the airplanes see from above and what are they experiencing." He wanted to experience what they were experiencing and to learn how it all works. He decided he wanted to experience flight and, once he took his first flight, he loved it, but he wasn't satisfied with just being a passenger in the airplane and so he thought, "Well, what about being a pilot and being the actual, the one actually flying the airplane?" In his career choice, he saw the opportunity to combine the experience of flight, to satisfy his love of traveling and to pursue his curiosity of how airplanes work. In addition, he knew that by pursuing a degree, he could be the first in his family to graduate from college, and

that is very important to him, accomplishing something no one else in his family had done. He feels like he is representing his family by achieving something tremendous. His passion for flying is so great that he feels no need for a so-called back-up plan, and that is one thing that drives him. He is one to follow his dream with a clear picture, and not be distracted by others. He said, “And if your dream is to become a pilot and you follow that with goals and plans, then you're gonna accomplish it.”

Bailey is a White female. She had some exposure to aviation careers due to her father working in the aviation field but not as a pilot. She fell in love with flying after taking a flight with a family friend. She developed an attitude that whatever it takes, she is going to get there, because she loves flying that much. Bailey emphasized that she is pursuing flying for a career because she loves to fly. She is in the career for herself because it brings her happiness, and she is not in it for the money. She said, “It's something that I absolutely love.” She even went on to say that if a person is not in a flight program for the right reason, or if a person is just in it for the money, it's not going to work out.

Caleb is an Black male. For him the desire to fly began as a seed planted by his mother when he was very young. They were sitting on the front porch, and they saw an airplane flying above. His mom who often asked him what he wanted to be, this time asked him, how about a pilot? The planted seed of interest grew when his father took him to an airshow and he became fascinated by aerobatic aircraft displays. Watching the aerobatic aircraft, he said he was sold on that for a career. He lost sight of that initial dream for a while, joined the military, and then after his time in the military, the aviation spark reignited when he saw a YouTube commercial on collegiate aviation. His interest is airline flying, but he wants a job in which he can help people.

He said he has a passion for flying, and it is the passion that never truly left him. When asked if he knew that there were not many black airline pilots, he said,

I knew that, because every time I went to the airport, I used to try and see, you know, you see all these pilots coming out from arrivals. And I'm picking someone up at the airport. See all these pilots coming out, but I noticed, you know, there's not a lot of Black pilots out there, you know? I mean, most people say Blacks are afraid of heights. I don't know about that. I mean, I've met a lot of Black people who are afraid of heights. I mean, I used to tell some of my friends, hey, when, when I'm getting out, what do you want to do? Pilot. They're like, why you go into the dangerous stuff, you know? Like, why you taking yourself to danger, you know? They used to look at me, like, you're crazy. You know, what kind of a black person are you? You want to fly? I was like, yeah, I want to fly, man. But I was, I've also met, like, in airborne school, most of the cadre there were black. And they were talking about jumping out of, not the regular jump we used to do. Because they used to, they want to be advanced. The halo jumps. Yeah, they wanted to do that, but they were doing it on the civilian side. No, they used to talk about that, and I was, like, see? Not all Black people are afraid of heights. So, it was like, oh, okay. And I was, like, okay. It kind of inspired me too. To want to be there, if I may say that, is all. And here I am trying to get there.

Taylor is a White female. She became interested in flying due to her family's frequent airline travel for vacation trips. The interest in pursuing flying as a career developed as her sister became a flight attendant and she came to know an airline pilot who is her sister's boyfriend. She said she thought it would be very cool to become a pilot, but she did not see it as something she could do and she did not know how one becomes a pilot. She said that watching her sister in

her career is probably what kept her interested in flying as a career, or as she calls it, the dream life. Once she decided that pilot was what she wanted, she started pursuing the goal more intentionally, wanting to go to a collegiate aviation program. She chose to enter a collegiate program because she wanted to obtain a college degree and train at a Part 141 school, and as she said, get the best preparation for the career.

Brian is a Black male. As a young child in another country, he lived under the flight path of commercial airliners flying into and out of the nearby airport, and he believes his first interest in flying came from the experience of looking up and watching them fly past. Whenever he was outside, he would watch the big jets flying by. Later, after his family moved to the U.S., he continued his interest in flying through his friend who was also interested in a flying career, but he did not readily know how to pursue the career. He joined the U.S. Army while still thinking about a flying career. He said, "I think I was so set on being a pilot like I told everyone I wanted to be a pilot...like you could make it but you know it costs a lot of money, family's not super rich so everybody knew it would be a struggle to get there but I just knew I had to do it, which is crazy because the first time I was on the plane I was on my flight coming here to the states. It was just something that I really wanted to do." He knew the path to becoming a pilot would be difficult mainly due to financial reasons, but while he was pursuing a means to begin flight training, he learned about the aviation program at his current school. His passion for flying is what brings him joy. He finds it incredibly joyful to just walk out on the flight ramp knowing that he can get into an airplane and experience the freedom of flying.

Allison is a White female who is already a certified flight instructor in her second year at her school. She developed her love for flying during a flight on an Air Force KC-135. She described her impressions of that flight:

So, we were flying back and I think we were over like California, and the boom operator, the boom is what they refuel with. He said, 'Hey, do you wanna come see the boom?' And I was like, sure! Like, I'm not doing anything else. So, I went back and it's a glass bubble on the underneath of the airplane. And I laid down. I played with the boom and then pretty much after that, I was hooked. It was, you know, night time over California, I got to see everything, clear sky. I was hooked.

Her interest continued to grow when her mother, on her 15th birthday, let her go up with one of her friends in a Cessna 172. She said after that, "It's just always been I wanted to be a pilot." Her dream is to be an airline pilot, and she just wants to fly. She said, "And I just wanna be flying. I don't care where it is." Her passion for flying was demonstrated when she said, "I fell in love with it. I go three days without flying and I'm like, I need to get in an airplane. Just, it's what I love to do. I couldn't imagine doing anything else." When asked where she finds joy and comfort in a stressful environment, she said, "Getting in an airplane definitely helps." She is determined to pursue her passion to become a pilot, and she has never had much thought about her being a female in a male dominated career field.

Fran is a White female who is a certified flight instructor at her school. Her interest in aviation developed gradually and may have been significantly influenced by an event in her high school where she watched videos of military aircraft flying. She maintained an interest throughout high school and obtained an internship at a local airport FBO while in high school. Her passion for flying is so great that she wants to do everything in aviation.

I don't care what I fly, as long as I'm flying. And people were like, I don't believe that, but it's true for me, if it gets me in the air and it is reliable, I don't care what I'm flying. Yeah, I want to...I want to fly everything. I want to fly helicopters, and sea planes, and

gliders, and hang gliders and...I'm happiest when I'm walking back from a flight. When I walk across the ramp after just completing a flight, it's kind of like the endorphins that you get after you exercise. That's exactly how I feel every time and it's just a great feeling. I'm walking, and smiling, and joking with everyone, and filling out paperwork, and just excited. And I also, I have a bunch of friends who are already at the airlines and talking to them and how much they love their life right now. Yeah, makes me excited for that next step in my life and that I'm headed in the right direction. Yeah, I mean, everything gets me excited like seeing, I could sit at an airport for hours and just listen to the air being shredded apart by jets, so it, I love it.

Frank is a Black male. When he was about seven years old, his family flew to California, and that was the first time he was old enough to know what was going on. He said from that point on, he wanted to know how planes fly, and he wanted to fly them. He likes all sorts of technology, and he thought flying planes would be a different sort of thing to do, which appealed to him. He said he just likes flying and the challenge of flying.

I think just looking down, I guess it's just flying, especially like through clouds, flying through clouds. I could pick that over anything. I'll pick flying in instrument weather over VFR any day, 'cause it's just fun, and like landing it, just the whole process of like me knowing that I know how to do it and I'm talking to air traffic control, like I play games on my phone. And knowing that I like different types of planes. That's probably what really drives me. I'm a technology person, too. I try to always have the latest electronics. So that's what I'm really into. I really like the electronics of it. How the plane flies, you know, flying a yoke verses a stick, so it's just little small things like that. What really gets me, especially like when we used to sit out at Hartsfield, we'll sit on the

hill and just watch planes take off and land all day long. And just seeing how powerful and knowing that it's just two people up front just doing it, a stick and a rudder. That's what's cool about it. And then just the fact knowing it's a safe environment, and you're working with other professionals. It's just if you have a passion for something, it's not a job. It's more like a...it's something that's like a hobby or something that you choose to do.

Looking forward to his career, he said, “There is no other career field in the world that fascinates me more than becoming an airline pilot blasting off into the skies.”

Freda is a White female who is a certified flight instructor. Freda’s father and grandfather are pilots, and she always wanted to be a fighter jet pilot, ever since she was little. Her love of flying began by flying as a passenger on airlines. The travel was her favorite part of vacations. She said, “And my parents would be like, ‘Why are you so excited? We just paid for a Disney vacation.’ But you're flying. Like, you're excited about flying.” A discovery flight at Wings of Eagles set her on her path. She became hooked on flying as a passion on a night cross country flight seeing the beauty of the big aircraft lights and all the activity. About that experience she said,

And I just remember at night, seeing all those planes, and those big headlights, you know, coming in with those landing lights. And it was just such an amazing scene, and I was just like, oh my gosh. I get to do this for the rest of my life...I just fell in love with that flight. So, it took me a second to kinda fall all in, but now I'm just like, there's literally nothing on this earth I could do, other than flying.

Being at her program, she is even more convinced that she is doing what she wants to do, and the passion and career interest continues to grow. Her family came from a country where

there is not as much of a gender gap in terms of careers. She also has a career mom. She said that there are barriers, but when “you have something that you love and you want to get there, like, you're gonna get there.” About aerobatic training, she said, "I have never had so much fun in an airplane. I am upside down. And it was so mind-blowing to me, and it was like, wow, I really want to do that in a jet. She dreams big, but said she will be happy in any type of flying. She said that flying is a career you have to love because of the challenges and hard work involved. She said, “It's a really hard thing we do, and I don't think anyone would put all this work and effort into it if they didn't really love it.”

Faye is a White female. When Faye was twelve years old, she wanted to go flying. She had never been in an airplane before, but she was really interested in it and she really wanted to do it. Her father had not flown in many years, but he regained his pilot currency and took her flying. She thought it was just the best thing in the entire world. After that, she became fascinated with airplanes. Even though she wanted to fly, she did not know it could be a career option for her. Therefore, she decided to pursue a career in designing aircraft. A professor at her school recognized that she was interested in flying, and he discussed the possibility with her. After that, she switched to the professional pilot degree path.

Robert is a Hispanic male. He is an example of one who developed an interest in aviation early, then put the interest aside for a while until the spark reignited and drew him back to aviation. He has always been very curious with technology, and he is fascinated for example with how someone figured out how to make a working engine. He is also fascinated and intrigued with how the concept of how lift works, and how it is that aircraft are able to carry people into the air. He said he has been curious and fascinated with aircraft and technology since about age four or five when he was living in Mexico.

I mean, going back to pretty much when I was like five, I don't remember it. I was young. So, four or five years old. I would go to, like, in Mexico we would go to like these, I don't know what they're called, they're just like markets? Street markets? And they'd have books, and on one of them I would just be curious, like atlases and stuff like that, I mean, I saw like, you know how, back then...I dunno actually, how some aircraft had like, you know, synthetic vision. And all those kinds of things. And I was coming up in the world, and the head's up display. So, I got really curious about aviation through that.

Although he had that early interest in flying, he pursued a different vocation after high school. However, he maintained a feeling that he was not doing what he really enjoyed, and so he started seeking a way into flying as a career. Eventually, that led him to his collegiate program. He truly believes his passion is in flying now. He had the opportunity to work one day in his previous vocation, and it just affirmed that he was in the right place as a pilot. He said,

And I was only there for four hours, but that made me realize that that felt like work.

And being here as a flight instructor has never felt like work. So that's my joy, that I was like, wow. When you realize that something is actually meant for you, doesn't feel like work. So that actually made me enjoy my job even more and get me even more excited for what's gonna happen in the future.

He believes anyone can pursue flying, despite gender or race, if they are willing.

Henry is a Black male. Henry began his interest in aviation at age eleven when he saw a Air Force C-17 flying overhead, and he became excited about the aircraft and about flying in the military. When he saw the aircraft he thought to himself, "I wanna do that, but at the time I was like, oh yeah I wanna do military." He struggled academically in the first years of college, and

even questioned in the beginning if his college was the right place for him. He knew he would continue his aviation training so the question was where, if not at his college. Throughout his struggles in college, he never wavered from his desire to be a pilot. He said he is motivated by the money and the thought of flying the big airplanes, and the thought of flying jets. He said, “Yeah, I love taking off, when we went to California, like flying on those big regional jets are just like the feeling of taking off, how fast it goes, it's awesome.”

Hap is a Black male. Hap’s story of how he decided to pursue a career in aviation is very interesting because, as he said, as a young child he never wanted to get on an airplane because he was afraid of flying. His family planned a trip to Seattle when he was twelve years old, and they told him that they are flying there. It turns out that he thought flying was really cool, and he was thrilled with the takeoff and the landing. About the flight he said,

When you're flying into Seattle of course it was kind of, it was IFR, it's always IFR. It was, and I was like, this is kind of cool how they go, went through the clouds and found the airport. I was like, that seems like something I would want to do. So, I don't know, that's kind of how I got interested in it. So weird.

When they were in Seattle they visited the Boeing factory and he became enthralled with the Boeing 787 to the point that he decided that was what he really wanted to do. He said that of all his interests as a youth, flying is the one that stayed with him consistently. He joined Civil Air Patrol, and he began researching the military, which influenced him to obtain a college degree.

His motivation is not necessarily to become an airline pilot, but it is his love for the airplane and for flight itself and everything involved with flight. He said,

'Cause for me, I don't think, oh, like I said, I'm kind of weird, like I don't think it's necessary just all just be an airline pilot. Kind of like, oh man, that's a cool plan, I

wonder how, I wonder how it flies, I really wanna know what the cockpit looks like, I like the way it looks and I want to try fly different things, fly into different airports, you want to fly in different weather conditions, you want to be able to share it. I think this is, aviation's kind of this great thing that is kind of overlooked on by the masses per se, and I want to be able to explore as much as I can...It's just, there's so many things in aviation that you want to do, things this, this, super, it's like this really cool thing that this, nobody really ever sees. You know, I think that's what it is for me, it's just like I really think it's, this, I think it's really cool, spectacular, that you can fly like a piece of metal in the air and it just runs perfectly fine.

Hap is very expressive in his love for flying and in looking forward to his future as a pilot. He said he cannot imagine do any other job. He finds motivation and joy in knowing that what he wants to do is fly aircraft. He is committed to achieving that goal in some professional capacity. He said, "...anything in aviation I'll be happy to do 'cause I mean, aviation."

Hank is a Black male. Hank's interest in aviation started when he was young and his mom would buy him toy airplanes including remote control airplanes, which became a more passionate activity for him. He became interested in how airplanes fly, and how they are able to cross oceans and he wanted to learn more about it. When he came to the U.S., he had his first introductory flight when he was fifteen years old and he fell in love with flying. He said,

I fell in love with it after, from that point on. It was, it was just pretty much everything I hoped for. Everything I dreamed about and just being at the controls and just, it just feels like everything that I'm, every problem that or every issue that I've had you know. It's left on the ground and I'm just me up there with an instructor. You know, at one, at peace. There's no one yelling, there's nothing screaming. But, just the engine in front of you.

He decided to go into a collegiate aviation program, and once there his love for aviation grew, and he decided he wanted more from aviation than just being a pilot. He said,

There is nothing that you can do that does not involve aviation. So, there's more to it. It brings a lot out of it. You know, it makes it easier and pretty much for me I just fell in love with it because it's, it's a combination of everything. So yeah, I would say since I got interested in it, it's been going pretty good.

About his first introductory flight he said,

And my first flight was when I was fifteen. Yeah. That just set it off for me and it felt, actually felt amazing. My first flight, I actually didn't think I was going to fly. But, as all introductory flights, the instructor takes off. And then, once I was at a good altitude, okay, well. Yeah. You got it. You gotta try it out. See if this is really what you want to do and he would just explain everything and you're like, hey, well do you want to go left? You know, just turn left you know. And then you first, you're doing it but you're all over the place with that. And it's just like, okay, well to do a coordinated turn, you know, add a little bit of left rudder when you make that left turn and see what happens. Keep that ball in the center. And then you know, you see everything and it felt so smooth and easy. And I thought, wow, okay. This is pretty great. I would love to do this. I would love to really do this. But, again, once I did the, actually started the aviation management degree, it just felt a lot more easier because now, yes I'm flying. I also know what's going on. I also know what goes on in the airport an outside of the airport and what it takes to even get the plane from the tarmac all the way to the destination.

Hank enjoys everything about aviation including the people who are in aviation. He enjoys being around aviation people and talking with them, and just hanging around the airport.

He said, “I’m always at the airport here. I will maybe come spend two to three hours here. Yes, I don’t, I don’t have to have flights to sit in at the airport, but being around pilots, being around the airplanes and just listening to other people’s conversations.” He wants to pursue aviation to its fullest, and about that he related,

I want to do everything in aviation passively. As of right now, I want to control an airport at some day. Run a small FBO at some point too. Also want to get into a corporate airline as well as get into airlines. So, I’m over learning everything in aviation. Even if it’ll take me 20 to 30 years, I don’t care. I’m still in my, in my career. I’m still loving it. There’s, there’s everything about it makes me happy. Being at an airport just puts a smile on my face. So, it’s always something. There’s always different ways that I find to motivate myself.

He loves aviation, and even though he has trouble explaining what he loves about aviation, he has no trouble describing how it makes him feel.

It’s just it’s everything about it to love about it. It’s like all your problems are gone. Everything that seems so huge while you’re here, you’re at 5000 ft, you look down, it’s like oh, small thing. That’s not my problem now. This is, this is pretty good. There is never a day where I stepped into a plane and even though the flight, even though let’s say it was a stage check and I missed. Let’s say I, even if I failed that stage check, it’s still a happy flight to me because I learned something new you know.

Theme 2 – Relational thinking/drive verses rational thinking/drive – aspirations.

According to Federal Aviation Administration (2018) published statistics, there were 609,306 certificated pilots in the United States at the end of 2017, which is about 0.19% of the total U.S. population (U.S. Census Bureau, 2019). Only about 260,000 certificated pilots have a pilot

certificate that certifies them to be employed as a pilot (Federal Aviation Administration, 2018). What is the motivation for people who desire to learn to pilot an aircraft for the purpose of making aircraft piloting a career? If one were to truly consider all of the costs, the various decision factors would include monetary cost of training, the amount of time and effort required, time away from home and families, relatively low starting pay, the real and perceived dangers of flying, and social attitudes and beliefs such as the low number of females and racial minorities that are pilots. Rationally speaking, those are factors that keep many people from pursuing a career as a pilot. When people develop a love for something or have a certain worldview, they don't always think rationally. Instead, they may think more dominantly in relational ways.

Seel (2018, p. 4) stated, "The most powerful frames are those that shape our identity." Peoples' social imaginaries construct frames that can drive behaviors, which may in some cases be rational, and in some cases relational or emotional (Seel, 2018). Seel defined social imaginaries as being "poor unthinking assumptions about the nature of the good life embedded in our commercial brands and sense of self" (p. 5). For many of the study participants, there was not a clear vision of what the path to becoming a professional pilot would look like or what it would take to achieve their desire for a pilot career. Their drive and motivation started as a mere interest and then developed into a love for flying, and most of them had very limited flight experience prior to beginning their collegiate aviation journey. They expressed an imagination of what their dream career will be. Along the way, they learned to rely on direct and indirect relational support to share in the lows and in the highs of their progress and to keep them motivated to achieve their dreams of flying aircraft.

Learning to fly and earning the required ratings for a pilot career is a challenging endeavor for anyone. There is much knowledge to learn, and there are many skills to master.

Many students run into self-confidence problems and they may tend to lose motivation because the goal is at times seemingly distant and even unachievable. There may be many self-efficacy domains in play while in the course of earning a degree to become a professional pilot. Self-efficacy, which is a key cognitive-person variable within Social Cognitive Career Theory (SCCT), and self-confidence can play major roles in goal attainment of women in the male-dominated pilot profession (Germain et al., 2012). Students of flight rely on others for support. They rely on family members, and they rely on close friends, primarily those who are also learning to fly. Students of flight, due to their passion and desire to fly, don't always employ rational thinking in their career preparation. Even though flying and aeronautical decision making requires a rational approach, students of flight often think more relationally. Perhaps relational thinking helps them deal with the stress involved with the numerous exams, oral and practical evaluations, financing, and various barriers to achieving their goals.

Many new students of aviation do not realize the extent of academic work needed to learn the required knowledge and to master the skills needed to earn pilot certifications. Unlike other professions such as doctor and lawyer, flying is an endeavor that people can do as a hobby and aviators like to promote the activity as something anyone can learn to do. Students in a collegiate program face multiple challenges including management of their college course load, financial challenges of paying for everything including tuition and flight training, and the stresses of achieving the knowledge, skills and proficiency required to pass certification evaluations. As students achieve each rating, they become more confident in their abilities. Each pilot certification earned is viewed as being one step closer to achieving the dream of becoming a professional pilot and entering their dream career. It's their journey to turning their imaginations and dreams into reality.

Achieving flying goals is frequently done with the help of others. People in the lives of students of flight include flight instructors, which are key people. Others can include other aviation students, close friends, other faculty or senior instructor staff members, and family members. Self-confidence is key to success. Sources of confidence can include those people who help along the way and provide positive affirmation, and it can include the successful accomplishment of key milestones such as FAA certifications. If a student struggles in training, confidence may be weakened to the point of giving up the entire dream and questioning the career decision. Hard work and positivity are keys to success. Students interviewed seem to be so focused on their desire to become a professional pilot, that they don't put much notice or thought into the fact that they are underrepresented in a White male dominated field.

The development of this theme comes from participant expressed struggles, self-confidence, self-efficacy and agency, motivation, persistence and drive, personal goals and outcome expectations. SCCT provides a framework for analyzing multiple internal and external factors in a person's development of career interests, choice, persistence, performance, and satisfaction (Chung, 2002, Lent et al., 2013). A combination of cognitive ability, previous academic performance, self-efficacy beliefs, outcome expectations, and personal goals may affect a person's persistence in academically pursuing a pilot career (Lee et al., 2015). Ten of the participants expressed that they began their program with somewhat low self-confidence, and their self-confidence increased with each success and milestone achieved. Thirteen participants expressed that they struggled in the beginning, but they continued to persevere because of their goals.

The theme label comes from the idea that people may think rationally, but they often act relationally. They pursue their interests and dreams even in the face of adversity or lack of

knowledge of what it will take to achieve their goals. Most of the participants in this study did not realize or understand the level of work that would be required in their collegiate aviation program, and they struggled in the beginning. Their primary motivation comes from their love for flying and their strong desire to go into a career of flying aircraft. Other motivators come from a desire to do well to represent their families and to represent their underrepresented group. Most of the participants did not know they would be one of a very few females or racial minority members. For many of them, financing their flight training is a difficult struggle. Because most of the participants had little knowledge of aviation before starting their collegiate program, it is difficult to say that they had high domain-specific self-efficacy for a pilot career. It appears that their drive was based on their love for flying and their aspiration to become a professional pilot. Even though they may not have known how to achieve their outcomes and goals, they knew they would get there somehow. In almost all cases, the participants relied on relationships to help them along the way, especially through the low points.

Being an underrepresented student in a professional pilot degree program in terms of rational versus relational means those who pursue the interest think in relational terms initially. Those who persist need relationships to persist and succeed – family members, peers, role models, flight instructors, faculty. Underrepresented students tend to relate better to others of their like identity, i.e. other females or other people of their race.

Andrew is a Hispanic male and a senior who is in his third year in his collegiate aviation program. Like many professional pilot students, Andrew experienced many struggles as he worked to obtain his pilot ratings, complete his college course load, and worked a wage-earning job to pay for it all. At an early point, he sold his car to pay for his flight training. The lack of funds caused his training time to be significantly extended. He would work to raise enough

money to fly his next lessons. Once he achieved his private pilot license however, he had completed a very rewarding goal. About this, he said, “Well, it's real. Like, I'm pilot.” He also said, “And, it was like amazing accomplishment for me to be able to know that a goal and a dream that I had and started, it's now a reality that I had.”

The relationship a flight student has with his instructor can make a great difference in the student's progress, motivation and success. Andrew said he had very good experiences with all his flight instructors, and he believes it was because he was dedicated to his career and always put forth good effort. He held the belief that an instructor can only do so much. He believes the student must put forth the effort, and he said he didn't want to disappoint anybody, and most importantly, he didn't want to disappoint himself.

Also, like many flight students, he hit various stages of training that were difficult or challenging, and which weakened his confidence that he would be able to achieve his dream of becoming a pilot. He related:

For example, in my instrument rating, I struggled to do holds, that whole situation. Like got me to thinking that I wasn't gonna...I wasn't capable of being a pilot anymore. So, I just couldn't. I told my instructors I can't do it. I can't figure this out, what's going on, what to do differently. So, it made me just think, of like, I'm done with this, I got to get it over and I'm just gonna go do something else. And that created a lot of stress for me, because I was also focusing on school and trying to get all the other classes done.

The stress of not being able to master a phase of flight causes additional stress due to the additional funds required for extra training. Once he passed a particular phase however, his confidence as a person and as a pilot soared to new heights. He related that as he continued to progress, he realized a big increase to his critical thinking skills. He related that he has always

had much confidence in his abilities and in himself, and he is a big believer in hard work and dedication to achieve personal goals. He believes in himself, strives to maintain a positive attitude, and that helps in his perseverance. Andrew is a very optimistic and positive person as demonstrated when he said,,

Hey, you know, it was a bad day, but I still learn from what you did wrong and make it better the next day. And I was eventually able to accomplish that by doing that. So, just staying positive and, reinforcing that to myself every day.

He experienced some family members, not in his immediate family, doubting him, which probably hurt him most due to being a person who wants to do well for his family and represent his family well. He was hurt that some family members did not see that he was capable and motivated. On the other hand, he said their doubt made him work harder to prove them wrong. Motivation, confidence, and drive comes from love of flight and being set on the goal of becoming a professional pilot. The pursuit is very challenging, and rewarding. There is a lot of stress involved. Many come in with low to medium confidence, and confidence grows with achievements along the way. Friends who are also in the aviation program may serve to provide motivation and to help increase self-confidence.

Baily is a White female and a junior who is in her first year in her collegiate aviation program. Bailey is motivated by her love for flying, which has increasingly developed with time in her flight training. She went from not knowing what she wanted to do for a career to becoming set on a pilot career.

I loved flying so much that I know...I knew that, whatever it took, I was gonna get there. I mean, overall, this degree, it's been one of the most challenging things I've ever done, but it's been extremely rewarding.

The journey toward obtaining a degree and the required pilot ratings can be very stressful for a student in flight lessons three or four times per week and carrying a heavy course load. Bailey claims that you really learn something about yourself, what your strengths are, what your weaknesses are, and what kind of motivation and drive you have. She said she is fortunate to have a flight instructor that she relates to and that she can communicate with openly, and that relationship has been a key to her success.

Bailey had no prior knowledge of the pilot career prior to coming into the program, and said that her confidence in the beginning was about medium, claiming she was a little intimidated by those who had more experience. She recognized right away that she had a lot of work ahead of her. A significant source of motivation and joy comes from her friends. She said,

Those days when I'm just really stressed and get down on myself and I'm like, ugh, I don't know if I can do this; it's those friends that back me up because they're in the same boat and they know why we're all here. I mean, we're all here for the same thing: we love this so much. So, yeah. If it's not just my sheer motivation and love for this, then it's those friends.

Caleb is a Black male and a sophomore who is in his second year in his collegiate aviation program. Caleb's drive comes from his desire to finish and achieve his goal of becoming a professional pilot. He also has a desire to represent himself and others as a Black person by successfully achieving his goal. He knows he is not the first Black male to become a pilot, but he still feels the need to succeed and to be a role model for other Blacks. He said, "Well, pursuing a degree is not easy. I mean, it's not hard, but it takes dedication. You have to study a lot. But, it's worth it in the end. That's what I say. It's all worth it in the end. If you put, if you're dedicated, and you want to do the work, it's worth it." He did not expect the

program to be as challenging as it was. He had just completed a successful stint in the Army, and he has a lot of confidence in himself, but he quickly learned that a flight program is not as easy as it may sound. Relating his experience and awakening to the realities of the challenges, he said, “Mike Tyson says everybody has a plan until you get punched in the face.”

He has a motivation to complete the program and to do well, to achieve something significant. He has a motivation to show other Black people that it can be done. He has learned to discipline himself to be dedicated to the rigors of the program, and he has a lot of self-belief that he can accomplish his goals. He had trouble with his first flight instructor, which lowered his confidence and even his desire to fly. He recognized his flight instructor as an obstacle, but he said, “How I choose to react to them is what will determine where I go. It's not about you; your attitude determines your altitude.” He said that he went with a new instructor and things changed for the better. He said his personal drive kept him going.

Emily is a White female and a freshman who is in her first year in her collegiate aviation program. She believes that more women are getting into the pilot career, and that more and more will come, and that motivates her career pursuit. She didn't think about being one of a small number of females very much until she arrived to campus. She said there's only five girls in her entire dorm building. As time went on, she realized more and more how few women are in aviation, and she became more motivated to succeed and to help with that issue.

Her biggest barrier was getting accepted into the school because of her poor grades at her previous school, which was mainly due to her disinterest in the major she was pursuing at that time. She was denied initially, but she appealed and the school accepted her. Now she feels she needs to do well to not let the school leaders down or herself because they gave her a second chance. She made the Dean's honor roll her first semester. Thinking about her future is what

brings her joy. She is not worried about being one of a small number of females in the industry. She said that even though people may doubt her abilities because she is a female, she knows she will do well, and she is not concerned about being a female in the pilot career. She has self-belief that she will succeed despite the doubters.

She sees and understands the importance of more women becoming pilots and therefore paving the path for others to follow. She claimed that being an example for other girls is one of her motivations. She has good self-confidence in her ability to succeed, and she is guided by her desire to become an airline pilot. Her confidence grows with each success in the program. She had a good first year and that helped her confidence. As a female she said she doesn't feel like she has to try any harder to prove herself. She said she just does her thing, to be as successful as she can for herself. Her sources of positive outcome expectations are her motivation to get to her career and her family that supports her. She said, "I know how determined I am to be an airline pilot. I look at it like I don't have any other option. Like, that's my option I have, I have to do it, I wanna do it, I can't imagine myself doing a different job. So, it's like, I know I'm gonna get there someday. Yeah. I don't have any other option."

Edward is a Black male and a sophomore who is in his second year in his collegiate aviation program. He is motivated to achieve his career goals and to do well. Due to prior military service, he is more mature and experienced in life than the typical college student. His initial training was challenging, and he said one thing that helped was talking with others who had already gone through the experience.

Going through private, that was kinda frustrating like because I went to the minimum hours, went through the entire G.I. Bill. And then had to go like look for loans and whatnot. And it didn't seem like I would be able to get it so I started questioning myself

whether this was something that I really wanted to do. But then, once I got past that, it kinda all came together; it was like talking to a lot of people. They say like private is, it's kinda intimidating, it's not hard but its intimidating. But once you get your license, you kinda get that confidence. Like more of a self-belief. So, the rest of the way it's a lot easier. It's just like that first hurdle you have to go over.

Because flight training is central to his career aspirations, he focuses primarily on that aspect of his studies, sometimes to the detriment of his other academic courses. He said if the flying is going well, everything else goes well. In staying focused on achieving his goals he said he maintains a mental picture of where he wants to be. It's like a visual representation of his career goals. He said,

And as I understood it, when you had a visual representation of what you want to achieve, it's a lot easier to like go for it. So, and to keep focus on that. So, in most places, in my phone you will find like pictures of airplanes and whatnot. I always had my vision board like stuck on my wall even while I was in the military, I had the vision board pasted up on the wall in my barracks room. I think that visual representation of what I wanted to do kinda kept it alive whenever nobody else was like there to push me on or whatever. You kinda feel at a loss if you don't achieve that. I guess, I mean like never give up and like if you hit a bump, to always look right, as long as you're willing to look for like a solution. It's like the old saying like when one door closes another one opens or like a window opens. If you just get that slightest opportunity to follow it. If you want it that bad, you will be able to achieve it.

Like other people who have achieved their aviation goals, he wants to be someone who can influence others, to show them it is achievable. Whenever he hits a barrier to his progress, he

looks for solutions to get past it, saying, "If you want it that bad, you will be able to achieve it." He also sees himself as being somewhat of an influence on others to pursue aviation. Other acquaintances see that he is achieving his goals, and that may influence them to pursue the path also.

Allison is a White female and a junior who is in her second year of her collegiate aviation program. Allison's motivation and drive come from wanting to become a professional pilot and to have a career as a pilot. She expressed a motivation to work harder because she is a girl and she doesn't want anyone to think she had it easier because of that. She is driven by a self-motivation to prove to herself that she can succeed. A professor really changed her outlook and motivation by explaining that her learning and career development would all depend on what she put into it. Positive affirmation from others has been a big help in keeping her confidence high or lifting her back up. She said, "But I definitely think CFI really, like, benefited me and made me a confident pilot. Like I would always say, I was like, yeah! I can do that! And in the back of my head, I was like, can I really? But now, I definitely think I can." Her biggest barriers have been within herself, questioning herself. Her parents really helped her in that area by keeping her pointed in the direction that she has always wanted to go. She wants to demonstrate to others that she has what it takes to succeed. She does feel like she needs to work hard and do well for the benefit of all women in aviation. She believes that what each female does is a reflection on all females in aviation. She feels like women definitely represent all other women in the career, and sometimes being one of a few girls is difficult because the behaviors of one or two can give the impression that all the girls are like that. She said, "if two girls are just kinda like, meh, I'm just here. I'm just going through, that's the mentality that everyone has about all ten girls. So, we definitely are pioneers and everything we do affects each other."

She finds motivation in wanting to be her best at whatever she is doing. She calls herself an extremely competitive person. She has a desire to prove herself in an airplane, and one of the reasons she works so hard is to refute anyone who says she got where she is because she is a girl. She had flight instructors who were encouraging in a way that helped her to develop confidence. Like others, she said that with each checkride passed, she became more confident. She would start a phase lacking full self-confidence, work really hard, and then do very well, thus reconfirming that she has what it takes. She said she has not faced any barriers from any people, and she also said her barriers are self-generated. Her parents helped her to get through periods of self-doubt when she thought maybe the career was not meant for her.

Fran is a White female and a junior who is in her third year at her collegiate aviation program. She is a very driven and motivated person when she knows what she wants to accomplish, and she said she has high confidence in herself. In her program, she began with good self-efficacy for succeeding in the flight training program, and with each success, her self-efficacy increased. She considers her lack of aviation background in growing up as being a deficit she must fill by hard work and perseverance. She said she is determined and a perfectionist, and she considers failures as things to overcome through hard work and study. Even though she is self-confident, she said she doesn't think she has as much confidence in her aviation training as she would like to have.

I still don't think I have as much confidence as other people, and I've heard that that's just a thing with girls. We don't have as much as confidence, we need more reassurance as pilots, and I get that reassurance by practicing extra landings, practicing talking to ATC more is how I build that extra confidence that...and I believe that girls, most girls need a little bit of reassurance.

She believes she has been successful in achieving her goals due to two main factors, her personal support system and her accomplishments in checkride completion.

Just my support system and how far I've come already. How much I've success I've already had. That, the completing the five checkrides in a year, I was like, I'm doing awesome...I honestly miss taking check rides, because they're a huge boost. You're like, oh, I got this. So, I'm really thinking about my MEI just so that I have a checkride and another notch on the belt. I like the, I like the drive and the stress and then the relief and the empowerment once it's done.

Frank is a Black male and a sophomore who is in his second year at his collegiate aviation program. He is motivated in his education and training because he is learning what he wants to do and is excited to do it.

And with that, with having that knowledge it makes it easier on me, when I'm in class, like I, cause I was like, I have to learn this stuff. This is what I want to do. So, I don't have a problem learning it. I don't have a problem succeeding, like I don't have an issue. Like, if there's something I'm having a problem with, I'll get help on it, 'cause I'm not afraid to, 'cause this is what I want to do.

He loves hearing from others in the business and about their experiences, particularly when they come into the classroom as guest speakers.

They'll show us their life, they'll tell us about their life. And when they're telling me that, like when I'm just sitting here like thinking like wow, this is really what I have to look forward to, like the pay, the trips. That's what pushes me. That's what drives me to look, I want to be like these people...It seems like they don't have any issues. All they do is

fly planes and go home. Fly planes and go home. And that, that sounds amazing. If you pay me to do that, sign me up. So that's how I look at it.

He is confident at this point that he will succeed and get to his career.

I guess from the learning perspective of being in school, I just want to get through it. Now I'm here, I have two more years, I'm almost done. I just started my private last year, and I'm getting my commercial. I'm doing my instructor's license this summer, so once I get all my ratings, I'm completely confident I can get my ratings. I'm not worried about doing that. It's just the fact of knowing that it's coming up and like wow, this is really happening so fast. Like, I didn't picture myself being here, at least this quick.

Some students like Frank feel intimidated by students who come from aviation families, backgrounds and experiences. About this he said,

And all these other kids, their dads are pilots or their moms are pilots. And so, they have the knowledge or they have that extra help, they can call and say, 'Hey Dad, I need help with so and so.' I didn't have that. So, it was faith in God...I had to get it how I got it, and so that was really my mindset. That was just how I operate, that's still how I operate. Like even though there's probably other kids who have more access to things than I did. I know there's always going to be somebody better than me. Once I got that understanding, my confidence even got better because I shouldn't have to compete with anybody. I'm competing with myself, 'cause everybody learns in different ways, everybody gets their ratings different ways.

He said he also likes the industry because it is open to everyone. It is accepting of everyone.

And that's another thing I like about the industry. In a sense, anybody, like you can...anybody can get their ATP and it just matters how you get it. Whether you go to

college or you go to military. Anybody can do it. That's what I like about it. It accepts me. You can do anything. You just gotta apply yourself.

Freda is a White female and a senior who is in her third year at her collegiate aviation program. She said she is a competitive person and she is not going to let any guy get one over on her. She said, "...there's a lot of competitive people in this program. We're all like, looking at that board, and like, oooh, who got their rating next? I did it in 13 months. Well, I want to do it in 12 months...." The program for anyone is stressful, particularly in the beginning when a student is just starting to learn how to fly. Many students do not have a lot of confidence in the beginning, but as they achieve successes, they build confidence. She said, "Because having confidence in when you fly is such a huge thing. Like, when you are nervous or stressed, it affects your flying and you don't even realize it." She also believes girls may tend to exhibit less confidence than boys, especially in the beginning stages, and people who express negativity can tend to reinforce a lack of confidence. She said,

And I think a lot of times, girls don't have that confidence because a lot of times guys are like, 'Yeah, you passed that test because you're a girl', and you're like, okay, well I've guess I'm just not that smart, I'm just a girl. And, you know, I just think confidence is a huge thing, and you have to be able to have that, because you have to be in command of that aircraft.

Also about self-confidence in girls and guys, she said,

Yeah, I feel like we are more passive, and calculated, and we think about it, like guys are more brash, and they just kinda like run into it. And they're like, 'I guess I'm just gonna go do this.' I've had a guy literally tell me, 'Oh I can land a plane. I'll just pull out the check list.' He's never flown in his entire life. And he's like, 'How hard could it be?'

He was like, 'You know, you just land it, you just use the check list... You know, I think, being around guys, I've seen like how they attack it, and I'm like, okay, well, I just have to do that. Because as a private, I got sucked into that overthinking, like, should I fly today, should I not? Like, oh my gosh, like where do I land? Like, you know, all these things, and you know, if you're coming in off idle, and you're like, oh am I too high? And like, no, just fly the plane, do what you need to do. You've been trained, you know what to do, just do it. That's the kind of thing that I had to learn. And don't let other people, like whatever you do, deter you. Because you should never let someone's opinion like, change what you want to do. My mom always taught me that, because her dad was very strict and very like, 'You're gonna be an accountant, like you're not allowed to branch out.' She really wanted to go into the military, she really wanted to do other things, but she let those people determine her future. Like, you can't. You gotta just take the reins...

Faye is a White female and a senior who is in her fifth year at her collegiate aviation program. Faye had a very tough year in which she had some health issues, and she had to take significant time away from her classes and her flight training. This caused her to ask herself, "Is this something I really want to do?" She already had faced one setback when she found out she could not join the Air Force, and with her delays and battle with health, she considered a non-flying path in aviation. Her school faculty helped her by allowing an extended incomplete status for her flight course. Other struggles in the flight training have been similar to those faced by most people. She said a bad flight causes her to question her motivation to continue, and then she would wake up the next morning and her attitude was, "Yeah, this is something I really

wanna do.” She feels like her confidence runs in peaks and valleys depending on what is going on in her life, and how her flying is going.

During her times of struggles, she received motivation and support from her parents, her professors, and her friends. At one point in her illness she told her boyfriend,

I don’t wanna do anything anymore. And he was like, ‘Well, you, you’ve always really wanted to do this. You can still do it. Like, I’m here with you.’ And I’m like, okay. So, I ended up, you know, not really re-enrolling, but redoing...I ended up failing all of my classes that semester. And so, I had to retake all of those classes. And, it was just, it was hard, but I am, I just had to be determined. So, I just, this is something I really want to do. And now, I’ve had so many things get in my way. It just, everything else just seems so small now. I’m like, oh, bad flight? Okay. I’ll have a good one tomorrow.

Robert is a Hispanic male and a junior who is in his third year at his collegiate aviation program. When he first looked into military flying, he was told he could not qualify because of his eyesight. He did not give up his dream, and he conducted his own research finding there are ways to achieve his goals despite his eyesight. He said, “That’s how I got into aviation by just doing personal research at the age of, 19, 20...and now, here I am.” He also said, “I didn’t really have the proper guidance that I would say. So, then I kinda picked up on my own and, here I am.” He is a successful student who is a CFI, and is quite driven on getting the job done and doing it well. He said he tries to avoid stress because it is a waste of energy.

I try to not stress. What stresses me out? Mmmm. Probably falling behind. I’m, I hate to say it but I’m a big procrastinator. Yeah, I guess so. I mean, I try not to stress because what’s the point of stressing, because if you get stressed you’e only wasting your energy on stress. Maybe you could be using that energy on something else. That’s my

philosophy. But to a certain degree you can get, there's a, there's like a healthy level of stress which is non-stress. But then there's like the extensive stress which I try to just, throw in the trash bag, trash can, and just move along.

He said he has not really faced any barriers or negative situations related to his career goals or journey except that related to trying to get into the Air Force.

I mean, as you can see I've had my, I've planned my whole four years here so I've never had, I've never left any room for like bad or negative or, it's mainly throughout wholly positive. I mean, I was, I was trying to do Air Force for a little bit, but I think I got little, I got medically disqualified for stigmatism. So, then they say we'll waive it, but then I got a little afraid, I was like you know, I could get PRK, but then I went to a doctor and they said we don't recommend you getting PRK or LASIK because your eyesight's not stable enough yet, it's adjusting just a little bit. They said you could get it right now but then in a year it could be a little iffy. And, I decided to just drop that and then, I'm here teaching now.

He said, "You know, growing up all throughout my life, I've always been told you can't do it because of my eyesight." He said he is very determined to achieve his goals, and is not willing to just give up.

Harvey is a Black male and a senior who is in his fourth year at his collegiate aviation program. Harvey said he was a student who took longer than most to complete his private pilot training and certification, a little over one year and about 80 flight hours. He said he had trouble connecting with some of his instructors, and the struggles caused him to consider that maybe aviation was not for him after all. He said he almost left the program after his first semester, but he decided to push through. He said he started the program with a lot of confidence, but once he

realized the extent of requirements for exams and studying and preparation, he lost some of that confidence in himself. He said that the program becomes easier after achieving the private pilot milestone. He related that he sought the help of other people to help him through, and his family also gave him encouragement. After each successful checkride, he gained more personal confidence and he felt better about himself as a pilot. He talked about his family being a motivator because he knows he will be the first pilot in his family. He knows the struggles of becoming a professional pilot and his advice is to work hard and stick with it.

Henry is a Black male and a senior who is in his fourth year at his collegiate aviation program. After a rough start struggling academically, he turned things around, and he will graduate with honors. After a few minor failures in his first year, he made a commitment to work harder, knowing that hard work was needed for him to achieve his career goals. He said he is a bad test taker and he has a hard time focusing on many difficult subjects at same time. He said, and probably thinking of his own early experience, “Because I honestly think it’s because a lot of the students aren’t ready for college initially. They might think they’re ready to go. I see people come in, they’re like college is gonna be so fun. No, it’s not. You gotta stay inside, you gotta study, you gotta get through math, and I’m not a math man, that was rough, but yeah, I got it.” His private pilot training took a long time, but after that, he did much better and graduated with his commercial pilot license ready to start CFI training. Although he experienced times of questioning himself, he stayed persistent in his goals saying about his progress and confidence, “It was pretty steady, I always had the goal in my mind.” About one low point after failing a private pilot exam, he related,

Pretty much cuz after, after I did fail, like I was like oh man, I went to everyone I was like oh I failed, it’s over. And it was like it happened, everyone fails something, like

even instructors, I even went to, like instructors be like ‘Yeah, I failed like three.’ Like wow, thanks for telling me that.

Aviation is different than many college disciplines in that the student must be able to apply the knowledge immediately in a flying aircraft and in oral exams. He also related,

Oh yeah, definitely I’ve had some moments where I was like I can’t do this, so I gotta, I can’t have fun today, I gotta sit down and I even gotta leave campus just to get away from all the fun stuff just to study. I did that.

Hap is a Black male and a senior who is in his fourth year at his collegiate aviation program. He said his key to doing well in the program is listening to flight instructors, teachers, older students, and paying attention to what they have to say. In the beginning, he did not have a lot of confidence in himself, it seems because he thought he always had to have the right answer, and he did not know if he would be good enough. Eventually, he learned that he needed to learn that aviation requires applied knowledge, not simply memorized answers. And, even if he did something wrong, it was a learning experience, and he could then turn negatives into positives.

He said he has encountered no barriers to his academic and career goals. He characterizes his program as being “kind of one big happy family”. He is also motivated by wanting to do well for his family “‘cause they’ve also believed in me and so much, so much so that they actually let me go to college for it.” He also wants to do well in the program for everyone in his program. He said,

And also, for everyone here too ‘cause you know, like I said we’re family and it’s kind of like if I don’t do it, it’s kind of I feel like I’m letting them down at the same time. Yeah, I don’t know why, but it’s just kind of, I’m kind of, I like people, kind of strange when it comes to something like that. It’s kind of like, just like man, I don’t know if I can go and

face these guys after if I gave up or if I don't tell them I don't want to do it, 'cause I do want to do it, but it's just like, oh, it's just like, you know, it's just like most of the time, it's like a moment of doubt when you just get past it, keep on doing it. And it's not, it's not but you know, in your mind it's kind of like, you don't want to let anyone down. If I'm put into, put in work and you know, believed in you, so.

Hank is a Black male and a senior who is in his second year at his collegiate aviation program. He finds motivation by just being at the airport and taking it all in. As with many new students to aviation, Hank struggled in private pilot training, and he related that at one point he wanted to quit. He did not expect the amount of persistent studying required to progress and succeed. He came to the realization that everything he was studying was important to his progress. Unlike many subjects, he learned that he would need to know how to apply the knowledge to not just do well, but to stay alive. He said,

You know, it's, I would say when I got into it, I didn't expect the studying part and everything to be so hands on and everyday, but it was a process. At first, yes, it's, you can never slack off on that. You take off a day or two from it, you might as well just start over again because it's not a lot of work, it's just tedious work. It's just knowing everything and it's all important things that you have to know. It's, there's nothing about it that is just like, oh well you don't need to know this. Yes, you need to know.

Everything about it is, it's a must know because if you don't, you may not say I don't care about that but yes this is your life at stake and this is other people's lives at stake.

So, it doesn't matter how you put it, everything about it is useful. Everything about it is important.

Hank stressed the need to learn every day and to seek knowledge and understanding from others. He said every career choice will have its ups and downs, but you must always push forward to achieve your goals.

But, it's always a learning process. You learn every day. There's always new things to learn. There's, there's always something you want to know. And I would say one of the best ways to learn in aviation is to ask the people questions. Everybody else has a different way of explaining certain things to you and getting different ideas of how to do different through the same thing helps out a lot more.

Theme 3 – Environment and career supports. The development of this theme comes from participant responses related to effects of the contextual environment and supports on their career aspirations. The influence of the environment on career interest and development depends on how a person interprets and responds to the various contextual environmental factors (Lent et al., 2000). The likelihood of a person translating interests into career goals can depend on positive and negative influence of various environmental factors (Lent, Brown, Hackett, 2000). SCCT models have demonstrated that social and environmental supports in general are positively linked to interests through their relations with self-efficacy and outcome expectations regardless of gender or race/ethnicity (Lent et al., 2013). All of the study participants have parents that actively or passively support and encourage them in their pursuit of a pilot career. In some cases, family members outside of their immediate family have expressed less encouraging and even discouraging support, but it was not enough to negate the support from their immediate family. All of the participants also expressed that they rely on or have relied on support from close friends in their program, and/or school faculty or staff to help them achieve their goals.

All of the students expressed that they love their school environment, and in particular their specific aviation department. The participants used expressions like: family atmosphere, everyone treats everyone the same, etc. Nine of the participants expressed that their school has a very welcoming environment and wants to see them succeed. Eleven of the participants expressed that they are not treated any differently because of their underrepresented status. Six of the participants expressed that their school program has a family atmosphere and everyone is treated equally.

The road to becoming a professional pilot presents many challenges to outcome expectations along the way that need solutions. Andrew is an example of a student who started his journey with encouragement from his family, but without someone who could show him the way to achieving his aviation career goals. At first, he did not have the money to pursue his collegiate aviation education and training, but with the help of others he worked to obtain scholarships. In addition, he had no one in the beginning to go to for advice on how to achieve his career goals, and he had no role model. Even though he felt alone in the process due to his family background of no one in aviation and no one having a college degree, he learned the path by personal research and talking with people who provided knowledge and advice and encouragement. It was his university aviation program and environment that made the difference for him. Once he began the program, he was able to find and use people supports the university provided. About his struggles in the beginning he said,

I felt like I was alone in this world just being myself trying to figure out what to do and who to go with. And no one to give me ideas or guide me in the process. And at times, I did feel lost at the beginning of my training, just trying to figure out and find answers

to my questions, but I was fortunate to go to a university and a college program like [this one].

People who have been in or have come into the life of Andrew have influenced his career progress, and have helped him to progress to his goals. He noted that school advisors and counselors and faculty saw potential in him that he perhaps didn't see in himself. He related, "...they were there like when questions arise for like school or just daily life things, I will go talk to them and just have a conversation with them in regards to my situation." For him, these people became substitutes for other social supports such as friends who would be empathetic and understanding of the challenges of becoming a professional pilot.

His biggest stressor is financial stress as that is one thing that he has little personal control over, and it is an issue that could derail his goal accomplishment. Another source of stress is about not fitting in because he lived at home to save money, and therefore was not well integrated into the college student life on campus. For supports, he relied quite a bit on his faculty and staff advisors. These were professional relationships, but the advisors made it personal for him, which he considered to be amazing. Speaking of his financial challenges, he said,

...that was a big stress, but being able to at least have someone and go talk to them, and knowing that they were listening to me and not judge me for what decisions, if I change my decision of not becoming a pilot.

He noted one advisor in particular as being incredible and a big help.

She has impacted my life in a big time. She was able to convince me to not give up on pursuing my professional pilot, because I originally went and talked to her in regards to that, and I told her, well, this is what I'm thinking. I would just do my instrument, then

do UAS, something that doesn't require me to fund anything else. And she really like asked those questions, some important questions of, 'Do you really wanna quit something that you care about? Do you really wanna be a pilot? Do you really wanna look forward and then 20 years from now come back and say, well, I could have easily finished?' She was able to help me, and then make decisions and clarify things in a way that I saw myself, I couldn't quit. Like I could do it, and motivating me more as well to see that all other people saw the potential in me to be able to have that much, opportunity to create those chances.

Andrew's supports include a supportive family. One of his biggest motivators is his desire for his family to be proud of him. He looks forward to completing his degree and getting a flying job so his parents can see that their hard work has contributed to his success. He is very family oriented, and his ties to his family makes him want to work hard and succeed.

For Bailey, support comes from friends who are also in aviation. They study together, and they lift her up when needed. She receives support from her flight instructor and the chief instructor, who she respects very much. She feels very welcomed in her program. Living on campus in the dorms provided Bailey opportunity to develop a good friend group, primarily with other students in aviation. Bailey has experienced great support in her flight instructor who is also female, and with whom she has developed a very good relationship. Her flight instructor is probably one of her top role models. She also looks up to the chief instructor as someone who is a master and has been in the career for several years. She said, "While there are not a lot of women here, I feel very welcomed." She continued to emphasize the importance she places in her circle of friends who provide great support to her, even saying that she is where she is now because of her social group. She commented,

...and those days when I'm just really stressed and get down on myself and I'm like, ugh, I don't know if I can do this, it's those friends that back me up because they're in the same boat and they know how...why we're all here. I mean, we're all here for the same thing: we love this so much. So, yeah. If it's not just my sheer motivation and love for this, then it's those friends.

Early in her time on campus, she wanted to make friends, and that meant conversing with everyone including the guys. She quickly realized that on the predominantly male campus, the guys generally wanted more than just social friendship; they wanted a girlfriend. She commented that once she had a boyfriend, all her male friends just dwindled off. That wasn't something she expected. She just wanted to make friends. She thought everyone was very friendly at first, but learned that some of the guys had other intentions, and she thought that maybe her friendliness may have been interpreted differently by the guys. She doesn't know if the experience is due to the campus being mostly male. She feels that on her campus, she doesn't have to prove herself because everyone there is very welcoming and helpful.

For Caleb, supports started with his parents who encouraged his career interest. During his transition from the military, he was helped by career transition counselors who advised him about the GI Bill covering flight training. He likes to talk with others in the aviation program about their experiences to compare how he is doing. When he learned they experienced the same struggles in flight training, he realized he is not alone and he received a boost. He said talking with people really helps to put things into perspective. The flight instructor can also be key to success in the program. His advisor and faculty members also provide support and encouragement, and a push now and then.

When Emily began to look into becoming a pilot, she didn't really know anyone who had obtained a pilot license. She met her sister's boyfriend, an airline pilot, and he provided advice and support to get her on the way. By talking with him, she realized that she can become a pilot, and that led to looking at schools and picking the school where she is now, and realizing, "Yeah, this is what I really wanna do." Once she expressed a real interest in flying, her father helped her to investigate the career preparation path. Aviation is different from most other career pursuits. With many careers, you can go to college with a declared major in your field of interest and not be as concerned about the path until later. With aviation however, a person needs to get on the right track from the beginning due to the expense involved and the certifications involved and the many different paths to take.

Those that have helped her along the way include her family that pushes her to do well, her boyfriend that encourages her when she is stressed, and her teachers and professors. Her flight attendant sister and her sister's airline pilot boyfriend have been big supporters. Her family is what keeps her motivated the most, as they are her biggest fans and supporters. In her growing up experience, she did things with her brothers, and there was never a gender divide on who did what. She said,

I lived on a farm so my brothers, like, it wasn't that they would mow the grass or I would just work inside. It was, we would take turns mowing the grass every other time we mowed. Dune buggies and motorcycles and all that stuff, we did together. They taught me how to shoot guns; they taught me how to play video games. It's just I didn't grow up in a real sexist house like that. We were all just the same. And, I feel like how you grow up would affect that.

Financial support for Edward came from the GI Bill. He has always received support and encouragement from his family. Recently, he even learned that many members of his family wanted to be pilots, so he feels like much of their encouragement was due to their own personal interest in aviation, something they were unable to do. He now sees himself doing what they all wanted to do. At his school, he receives much support from faculty and flight instructors, which helps in reducing the stress of exams and check rides. His close friends provide support and encouragement. He knows that becoming a pilot is what he has always wanted to do and he has been vocal about it saying, "So, the people around me whenever they see me stray or whatever, start going off course, they just bump me back in." He does acknowledge the lack of role models for Black pilots. He explained that many people probably don't pursue the career because there is no one to look to for a mentor or model, for financial reasons, and simply due to a lack of understanding about the career, viewing it as a dangerous job. He said,

I think also the fact that there isn't a lot of Black people in the industry already. So, there's not a lot of people in these communities to look up to or try to head into that direction. And then there's a financial hurdle, which, it just kinda compounds itself. All these little reasons, it's a career that I would say a good number of people are scared of. You know, a lot of people, I don't think they understand it as well. They just think that the plane is going to fall out of the sky or whatnot. To them, it's a dangerous industry to go into. So, a lot of people are not into that I guess.

Allision always thought she would follow her mom's career and go into the Air Force. She receives very good support from her parents and friends who understand aviation. Her close friends support her, and her aviation friends, both guys and girls are big help. Professors and flight instructors have had large positive influences in her progress. Her aviation friends have

been key to her success and support, as she said, "...the huge thing, other than getting in an airplane is definitely the guys that help me study and are there for me, so that's really nice, 'cause it is like a family."

Her mom was a big influence on her persistence whenever she became discouraged. She related that her mom told her, "Allison, you're gonna do great and I know that this is what you wanna do. I believe in you." She grew up around pilots, and friends who are pilots have provided support in the form of career advice and guidance. One family friend, who is an airline pilot, has been a very big role model in her life. Faculty members also have provided support in the form of advice and as role models. She also finds supports from the other girls in the program, saying they stick together for each other. She said, "So yeah, I definitely think we stick together just because (laughs) we're girls." When she had tough times and thought that flying was not what she was supposed to do, her friends and family rallied and supported and reminded her of her dream. In one instance of a failed checkride, people tried to help by saying the DPE was sexist, but she refuted that claim. About support from her friends, including guy friends she said,

I also rely a lot on my friends in the program. There were four guys that I was super close to through CFI and every single night they were sitting at my kitchen table helping me study, sleeping on my couch when they were too tired to drive home. So, the support that I get from my friends in the program is definitely a lot.

Fran received much positive support from family, coworkers, and friends. Social support from friends in the program has been important to her success and reassurance. The girls in the program support each other in addition to other social support of friends and others. She said, "The girls in our program try to stay connected, and kind of like, oh we're the few and the

mighty, we need to remain friends and support each other at all times.” Her college environment is supportive also, including availability for financial support.

I have a great family background, very stable home that I take for granted. And they’re always supporting me, always can we pay for your next check ride, do you need any extra training, stuff like that, so...And then just people around me, the people who are important to me in my life are really proud of the fact that I’m a pilot. They think it’s cool.

Frank receives great support from his parents and others. About his tremendous support, he said,

And, it like stuck with me from that time I got on that plane all the way up to today. Because when I first got to high school, ninth grade, I’ll never forget. My teacher, she introduced me to Embry-Riddle [Universtiy]. Because I didn’t know anything about aerospace. I didn’t know there were schools. I didn’t know you could go to college. I didn’t know anything. I just wanted to fly planes...Yeah, so that’s how I really got into it. My mom, since I want to be a pilot, she started helping me, you know, what can we do. And I found out about OBAP. I did a summer program with them out of Hartsfield,...I flew the Delta simulator, I toured the airport and all that. And it was like, I was in heaven. When I was there, I realized it’s a Black organization, but there’s other races there. I mean, it was White kids, Hispanics.

Also describing the support from his parents, he said,

They love it. I mean, they’ve always supported me. They’re scared for me obviously, like they’re scared. They think it’s so cool, so obviously they support me and they see that I’m succeeding, so. And that’s what like motivates me ‘cause I know my dad is always

pushing me. He's always taught me and my parents always pushed me to, you know, get your education, play later, and that's how I think about school. Like I'll be by myself studying over hanging out with friends sometimes.

He also has close friend support at his school, which he described with the following. Yeah, it's like I have another friend, he's in the ATC program. He's about done with ATC program. He's African American. Also, I have another friend who dispatches. We kinda stick together, like me and him, we talk about aviation all the time. And, like we'll go to events together. Like a couple weeks ago, Republic [Airlines] came up and we went together and saw the plane. And like I go to his ATC lab while he's doing sessions. So, it's like we give each other information, and just talking to him and he's seeing the minority side in the air traffic control world. I'm seeing the minority side in the pilot world.

Freda's school support group is the group of female students in the flight program. They group message each other with all the happenings and take care of each other, as well as hang out together socially. Her father is also her role model as a successful airline pilot doing what she dreams to do. She also receives support from faculty members she admires. About one admired female faculty member she said,

She puts every single guy in her place, in his place. And I just really respected like, her outlook on things, and that's I guess kinda like, she has a huge backbone, and I think just seeing her at the very, very first level, as a freshman, kinda helped me be like, okay, well, you know, I can do that too, you know. She doesn't get pushed around, you just can't get pushed around either. You just have to keep going toward what you want to do.

Females in the collegiate programs talked about the supports they use in their stressful academic environment. Supports include parents, faculty members, and their social group of friends, primarily friends who are also in the aviation program. Faye's biggest fan and supporter is her father who is a private pilot and seems to have wanted to share his love for flying with her when she first expressed interest. She also receives much support from faculty members, particularly female faculty members that she sees as role models. About her social group of friends, she said,

I kind of had a larger group that I would hang out with, and it was... There was only one other girl in the group. She's now graduated. But we would always hang out. Like, on weekends, we would always study together, 'cause it's just kind of cool, 'cause all of the pilots, we all take the classes at separate times, and, we don't really go from class to class to class together.

She said that her mom provided lots of support during her struggles.

Always, during those bad flights, my mom was always there. I was always calling her on the phone, like, Mom, I don't know if I wanna do this anymore. And she's like, well, Faye, you really wanted to do it yesterday. What happened? Yeah, my mom was really encouraging. My boyfriend now, he was actually... we got together right before I got sick. He was really encouraging. He kinda encouraged me to get back, 'cause I almost dropped out of school, as well.

Her father was one to never gender stereotype when she was growing up, telling her that she can do anything she wants to do. When asked where she gets her joy and comfort, she said, "Honestly I guess it would just be peer support. You know, I'm with 30 other people that are going through the exact thing there, in the same mindset as me, they're going through the exact

same thing I'm going through." She relies on her mom and other females in the flight program that she knows will understand her personal struggles.

I, well, my close friend in aviation is a female, and we're always like talking with each other. But if I had a specific issue like, let's say I wanted to call her on the phone, like the other day when they, the other month when the guy was like, oh if the sky was pink. Well, you know, girls would be meant to fly, or whatever he said. I did not call her that specific time, 'cause I called my mom instead. But I would have felt more comfortable talking to her about that, because she would understand, she'll be like, 'Well how dare he say that'. And things like that. But if I would've told one of my male friends, they would have just laughed and thought that was hilarious. They wouldn't have had that perspective that she would have had.

Her biggest advice to others is to get involved and have good friends for support. She said,

Well, I guess find some good friends that you can rely on. That's probably one of the most important things about college, no matter what your gender, race, degree is. You just need to find someone, a good group that you relate to and that you feel they don't judge you for who you are. Just find a good group of peers that are going through the same thing as you, that way you have, you know, someone to turn to. You know, oh I just had this bad flight. You know, well four other people in that group also had a bad flight, and you all can sit there and talk about it, and bounce ideas off each other. So, my advice would be to, definitely get more involved on campus. That's something I wish I would've done.

Harvey related that his parents supported his career desires and encouraged him to get his college degree. He thought college would be too expensive, but his parents told him to keep the

grades up, and they would figure out the finances. He said, “But the only thing with that is, the prices, it just seemed a little expensive to me at first, but then they just told me, ‘Don’t worry about it, just keep good grades, and then we’ll have financial aid and pay off your student loans later’.”

His experience at his school has been enjoyable and supportive. He said his program has a family atmosphere, and everyone helps each other and motivates each other to succeed in their common goals. African Americans will tend to hang with other African Americans and with other students as well, whereas the converse may not be the case. He said he collaborates with the other African Americans in the program, but also with others in the program to help each other with the stress. Whenever he was stressed in the program, he said he would go to one or a couple of the African American guys that were a year ahead of him, and they would help him to talk through the issues and to motivate him. He said he saw them in a place he could get to someday. Although they are African American, he said the common race was not what made him more likely to go to them, but that he felt more comfortable with them as persons.

I just kind of bonded with them better, I don’t think it had really anything to do with the whole race thing, since I mean I don’t really consider like that I have to go to someone of my same culture to get help with the program. Yeah, I just knew them, like I was introduced to them before and then I just went to their group, and then they all just came and helped me together.

He emphasized that he has had many friends he could rely on and gain support from. One of his biggest sources of support was his roommate who was a White student in the program. He said he felt like he could always rely on him for help. His role models are his fellow students who were ahead of him in the program and are now in the airlines. He said,

“Well since they’re there, I wanna be there with them as well, to achieve my end goal. So, I think that’s what’s pushing me right now so far.” Other people who have supported him in the program are his parents and his extended family who were there for encouragement.

Henry receives support and encouragement from his parents and his friends, both in aviation and other places. Besides struggling academically in the beginning, he did, like many aviation students, struggle financially at times. The only aviation experience he had before coming to his school was on a family trip in a commercial airline. Like most aviation students, he decided early on that he needed to team up with other students in his class to get through the program. He said the perceived difficulty of the material was more on his mind than being the black student.

... as soon as we started going through class we’re like, wow, this is hard, we all need to team up and take this down together. So, and that’s pretty much what we did, kinda sorta. Yeah aside, there were two White guys and we would like converse in front of each other as generally going through the lesson plan and we would just like ‘What? Are you understanding this?’ Even though people with flight hours start looking around like ‘What? We gotta learn all this?’ So we would just like, so after that we just met on campus like, ‘Yo, we’re gonna stay together, we’re gonna get this done.’

Hank sees himself as one who does not have the resources that other students may have, and the perceived disparity almost made him quit the program. He started his career preparation at another university and he transferred to his current university. He enjoys being at his current school because everyone supports and helps everyone. He said other people are the key to success, and he explained that people in aviation learn from each other. He may believe that people of color in general may not have the resources that others have to go through an aviation

training program. He feels that the lack of resources puts him at a disadvantage, which means he must work harder to achieve his goals. Early in his training, he said that disparities in resources among students have made him want to stop trying because he felt he was working very hard and not making progress. He is much more comfortable at his present school because as he said, the instructors are easier to talk with for help. He acknowledges that everyone at his current school wants to help everyone else. He said that his current school provides a team and community environment.

The people around me really help out a lot more. I felt a lot more in like team and a community with [this school] than I did at my old school. So being around these people every day and talking to these people every day. Just being around them and just talking to all of them just makes it easier. You know, to push forward. It's, it's always a push. It's always, it's always somebody that will tell you, yes I understand what you're doing here and it may seem hard right now but just trust the process.

Like others, he said that it's the people around him that keep him going and persevering. Others that are ahead of him help him to see where he can be as long as he keeps striving. It becomes a shared experience that people learn from and relate to. Like most schools, the chief instructor sets the environment for everyone, and the chief instructor at his school is one that everyone looks up to as a role model. He also said,

...aviation you have to learn from other people. You have to, you have to see what other people are doing and get ideas. So, learning from all the instructors here and seeing how everything works helps a lot more.

One of his biggest challenges has been financial issues. He has good support from his family that wants to see him succeed in his career goals. His mom believes in him, which is a big motivator.

You know she always calls me and says hey, how's it going with this today? Did you get through that stage check yet? And I'll always tell her oh I haven't done that yet but it's next week and she's, are you prepared for it? Are you ready for it? Is everything going good? Do you need me to help you with this? Do you need anything at all? And it's just, it's just help. Just to know my family supports me and they're always behind me in any decision I make towards it.

Theme 4 – Initial realization and reactions to being an underrepresented student.

As I was accomplishing the coding process, several codes appeared that related to personal characteristics, identity, participant's reactions to first realizing they are underrepresented, and how the participant responded to various situations as an underrepresented member. In my initial grouping of codes, I had a difficult time separating comments related to initial reactions and comments related to behavior responses. As a result of the imaginative variation process, I developed two theme labels: "Initial realization and reactions to being an underrepresented student" and "Developing behavior responses". Theme 4, Initial realization and reactions to being an underrepresented student, captures the participants' initial reactions and understanding of their identity as an underrepresented student in their collegiate program and in their chosen career field.

As discussed in chapter two, SCCT encompasses physical characteristics of gender and ethnicity and the associated psychological and social effects on career development (Brown & Lent, 2013). According to Brown and Lent (2013, p. 123), "Gender and ethnicity are linked to

career development in several key ways, especially through the reactions they evoke from the social-cultural environment and from their relation to the opportunity structure to which individuals are exposed.” Almost all participants were surprised to learn they were one of the small numbers of females or of African Americans in the program. The two Hispanic participants did not comment on being one of the few. Many of the young participants did not have much knowledge of the history of gender and race discrimination in the aviation industry and the struggles that females and racial minorities experienced in the past. Many of them said they like being part of a small minority in their program, and they see themselves as being representatives of their group, either female or racial minority, in a way that they feel the need to succeed not just for themselves but also for others. Many expressed they feel somewhat special being one of a small number of their gender or race group.

Andrew is a Hispanic male in his last year of his collegiate aviation program. During his time in his program, he didn't feel like he was negatively impacted by being one of a small number of his racial background in his school environment. In his view everyone is just the same. He said he never considered race as being a big issue, and he sees everyone as being equal and the same. He said, “Everybody is equal, and nobody is different than anyone else just because of who we are or where we come from. I haven't like seen that on me and I don't believe it.” That was his attitude in arriving at his university, that “...we are equal and we all should be treated the same.” He said he has never experienced a time when he felt different than anyone else. He sees commonality in that all are pilots, and there is no difference in anyone due to race or background. Being a very social person, he is able to make friends quickly and to develop relationships with support staff he can leverage to help him along the way. One of his biggest motivations is to make his family proud of his accomplishments. He said there is a

sizable Hispanic community in his town, which is where his college is located, and living at home, he was in a small community of like people.

Bailey is a White female in her first year at her school. She claims that she knew that the campus and program would be mostly men, but prior to this study she did not really consider how being underrepresented as a female affects her. Her early role models for flying were men, those people that worked in the same ATC facility as her father and that she mostly grew up around boys in her family.

Caleb is a Black male in his second year at his school. He said he can use the terms Black or African American interchangeably, and he said he has encountered people who don't like it when you say African American. He said that nobody wants to offend, and no one wants to be offended, so it becomes difficult and awkward to say anything or to acknowledge the particular race of someone. People will tend to ignore it in those situations and just pretend that everyone is the same and color does not matter. He related one particular and interesting experience he had while he was in the Army.

I actually had a time when I, someone asked me that, and it was, I was filling out some paperwork, and they asked me race? I said African American, and he looked at me, said don't give me a hard time. Like okay, yeah. It was actually a guard at Fort Bragg. Because he asked me, because... it was the first time I didn't see black. It said African American. African American. Every paperwork I saw. They're trying to be respectful. So, I went to this gate, and I was registering something on post, and this guard, old guy, I want to say maybe mid-50s, early 60s. He asked me my name and everything, and then he got to the race. He's like race? I was like, African American. So, like, even dropped his pen. He's like, don't give me a hard time. Okay, Black. Yeah, what you want man, I

mean, what can I say, man? I mean, everybody wants to be...You don't want to say something that will offend someone, you don't, you want to stay on the right path. So, I just say Black or African American.

His realization that he would be one of a small number of Black students in his program came upon arrival to his school.

When I first got here, like, you're trying to see, oh, is there a black person, a Black instructor here? First off, is there other Black students here? That's the first question you ask yourself. You know? I mean, because I was coming, to [this state], so it was like, are there other minorities there? You know, especially in the school? So, I got to a CFI lounge, and I couldn't see any other Blacks, and I was like, man, okay. It hit me right away until I saw a CFI was Black. I was like, oh, okay, there's one right there. And then I saw that guy, I was, like, oh, there's another person. Like, oh, man. There's not a lot of Black people here, but I was, like, oh, okay. I mean, I'm here for the education. I'm not here for that.

Caleb related another time when he realized that he was one of a small number of African American students in his collegiate program.

My first semester, that's when I felt like, gosh, I'm underrepresented. Well, I can't say for the feeling, but, many of times I've been in a class, and I'm the only, I'm the only Black guy in there. Yeah, to see, that now, that brings me back to the point of, like, if you notice, like, there's not a lot of you, you'll just, it'll just, it'll just be like, oh. There's another Black guy. It's like, a comedian I like, he was talking about how he went to Canada, Edmonton. And he couldn't see another Black person. And he's like, where am I? And he saw another Black person, and he almost ran up to him and hugged him. So,

maybe you're in, like, a crowd full of Black people, right? And you see another White person, and you're like, oh, yeah, man. You know? I, there's someone else of my race, you know? I mean. You just notice it. You notice it. Some people, it affects them, I guess. Some people, they just like, oh, okay, cool, and move on.

Emily is a White female in her first year of her collegiate aviation program. She came to the realization that there would be a small number of females at her school after arriving there. She likes her status of being in the minority group of females in aviation. She thinks it is great that she will be one of the few female pilots in the industry. She believes that most people just don't understand that women can be pilots just as well as men. In the beginning of her developing interest in aviation, she didn't think about it much that she would be one of a small number of women, but when she arrived at her school, she more fully realized that there really are a small number of girls, and said "I think it's cool to be one of the few." She has not experienced any negative reactions or comments, but she knows that other people do take notice that there is just a small number of girls where she is. Growing up, she was in a family where gender didn't determine what activities you did. She lived on a farm doing everything her brothers did. She thinks that the way someone grows up can determine how they feel about gender dominant careers. She does think that many females do not choose the career field because they see it as a male dominated field, and they may be worried about going into it for that reason.

Edward is a Black male in his second year in his collegiate aviation program. He went from growing up in a majority Black culture in a country in Africa, to a high Black population in a U.S. city where he lived after moving to the U.S., then to the military, and finally to the primarily White population in his current university and its surrounding area. At his school, it is

very evident that he is one of a small number of Black people. He said he knows everyone who is Black, but it is not something that has any issues attached. Having experienced many different places and cultures, he said he views everyone as being the same to him, just human beings. He said race has not affected his experience at his school. He said he doesn't always get positive interactions with people around the predominantly White community outside the university campus, but that's the only thing that he has encountered regarding race. He has not even considered what it will be like as an underrepresented person in an airline career. He sees himself as a pilot first and his focus will be on how to operate as a pilot in the industry. He is the first pilot in his family so he had no one to talk with in his family about how to be an airline pilot. He views himself as being able to influence other blacks to pursue the career, and he thinks that is pretty cool.

When asked about the terminology, African American or Black, he said either, it doesn't matter to him. Like many young people interviewed, he seems to just consider himself as being the same as anyone else, and it does not matter what the color or race is. He spent most of his childhood living in a predominantly Black country, so coming to the U.S. was more of a culture change than anything else. He claimed that his background and race are not issues to anything he does, and he said that once people get to know him, his background race do not matter. He does have clear knowledge that he is one of very few Blacks on his campus, but that is not something that he thinks much about. He has had many experiences being in foreign countries both as a child, and times that he has traveled with the Army. To him, everyone is just a human being. He is more interested in who the person is, rather than what their race is. He said that his race has not been a significant factor during his time at his college. Much of his attitudes about race may be based on his growing up in a country that is predominantly Black and obviously of a

different culture. He recalled no experiences in which race was a factor in anything he has done while at his college.

Allison is a White female in her second year of her collegiate aviation program. She believes she is in a learning environment in which everyone is treated equally and that there is no difference in capability among genders. She sees everyone treating everyone the same. She has considered how her career would affect having a family, but she is also a planner so she thinks about all things in the future. Her parents helped her to see that she can have a family and a career much like her own mother has done. She entered the program knowing that there weren't going to be many women in the same career, so getting into it, it was not a big shock or surprise. But, there have been moments of pause like in one of her classes, where she related,

So, in my private class, there were a couple girls, and then in my instrument class there were a couple girls. And then I got into my commercial class and I was the only girl.

And I came in and I sat down, and I knew everybody, but I was looking around and was like where are all my other, like, friends? Where did my girls go?. I'm the only one in here. And then in CFI, that really hit because I am the only girl in CFI. And I was just looking around and I was like, oh my goodness. I really am one of the only girls. But it's never been like a huge shocking realization that I am one of the only girls, just because, you do have a good bit of girls here.

She does not see a reason to treat others differently to help them succeed just because they are underrepresented. As a flight instructor she said, "Obviously, I want all of my students to succeed, but yeah, I don't really think I would say I want you to succeed just because you're a woman, or, you're a minority. It just, people are people to me." She believes some people have

beliefs that women should not be in jobs that are primarily male dominated or seen as being dangerous.

To a certain extent she is more comfortable around guys who have similar interests than around girls who do not have the same interests as she does. She seems to want to prove to the guys that she can hang with them, and she deliberately works hard because of that desire. She likes to say that everyone is the same, we're all just people trying to get a job done. She believes that how a person was raised also affects how they view genders and race in some careers. She said she is not going to get upset by people who have prejudices. She works and strives to be just one of the group, but she also knows that the group dynamics can be affected by girls who don't perform, and she seems concerned by that. The girls in her program police each other's behavior for the good of their gender in the program.

She does not feel like she has to prove herself all the time at her school because the guys have the attitude that it does not make a difference whether you are a girl or a guy. She said,

Sometimes there are times that I'm like, okay, I'm gonna have to prove myself because I am a girl. But typically, it's not very common here that that happens because, y'know, I'll always have it in the back of my mind because I want it to drive me. But the guys here are really good about, they just look at me and they're like, 'Okay, it's Allison, she's just one of us, she doesn't get anything, easier or not.' And I think it's because of the mentality that we have. Y'know, like we do have a good bit of girls here, so they don't really think it's a lot different. There are some that have that mentality, but most of the time, they're just like, 'Okay. It's Allison'.

She is in a sorority, and her sorority sisters are amazed by what she is doing. "And people look at me, like I'm in a sorority, and they're like, 'You fly planes?' And I'm like, yeah,

and they're like, 'That's so cool!' And I was like, It's just what I do! Y'know, it's just normal for me." Growing up, she was in activities that were typically majority male like the band drum line and other male-dominated clubs. Also, her mom was in the Air Force, so she saw her in a situation of being underrepresented. She said, "I'd rather be around guys than girls, anyways, so..." When talking about instructing male students, she said, "I'm gonna start out with you're a person, I'm a person. Doesn't matter if you're male, doesn't matter if you're female, I'm gonna treat you the same way that I would wanna be treated as a student...". Her attitude is: "...you're a person, I'm a person, we're all people. Let's get the job done."

Fran is a White female in her third year of her college program. Her introduction to the aviation industry was working as an intern for an aviation company. She noticed early on that it was mostly men working there with exception of the women who worked the front desk at the flight school. People coming into the maintenance and charter shops were normally guys. She said it didn't bother her because as a kid she was always friends with the guys and she has two brothers, so she has always been in a very masculine environment. Even her mom jokingly told her she would have more choices for who she wanted to date because there weren't many girls for competition. She emphasized that it didn't bother her to know that she might be the only girl among many guys working at the job. She said, "I'm not bothered by the fact that I go out to eat with five guys and I'm the only girl there." She simply sees herself as one of the team, just the same as everyone else, i.e. wearing the same blue shirt as everyone else. She is motivated solely by wanting to fly for a career.

She believes that girls may need differentiated instruction to meet their need to develop confidence in what they are doing. She said girls may need more positive feedback and assurance. Although she knows she is one of a few women in the career field, she said she does

not feel underrepresented. “So, I don't feel underrepresented because there's not really anything in aviation that girls have to have, that boys don't have to have. So, I've never really felt that throughout the years.” She also said,

I think the most females I've ever had is like three in a classroom, but that doesn't make me feel underrepresented. The bathrooms are always cleaner. We always have toilet paper and paper towels because it's not always being used. So, I don't feel underrepresented because there's not really anything in aviation that girls have to have, that boys don't have to have. So, I've never really felt that throughout the years.

She does not believe that girls must work harder to prove themselves. She believes everyone is the same and everyone must work hard to succeed in aviation. If some girls work harder, it is because that is their nature to do so. “Yeah, honestly I'd just give them the advice I give everyone. You gotta work hard. You don't have to work harder 'cause you're a girl, you just have to work hard.”

Frank is a Black male in his second year of his collegiate aviation program. He is the only pilot in his family. He knows he does not see many African American pilots at airports, but he said he did not think about it much. He said he was just a kid who wanted to become a pilot, and his race played no factor in thinking about the career and what it would be like. Frank did not realize he would be one of a small number of African Americans until he arrived at his school.

Well not really until I got to college, until I got here. I was a part of, and well I still am, a part of OBAP organization. Yeah, I'm a part of OBAP. And that's actually how I got into aviation back in Atlanta. It was very...It was diverse. So, I didn't really, I didn't think about it that much. I didn't...I notice when I go to the airport I don't see a lot of

African American pilots. I don't see a lot. But I think about it, but it's like, yeah, it's not like as big to me as it seems. I guess I just don't think about it. I try just to stay focused. But I do think about, I do realize, but when I got to school, and I'm in class, and I turn around, and I'm like, hey I'm the only African American kid here. Like in my class now, in my Pro Three class, which is the commercial class, I think I'm the only one out of like at least 30 to 40 kids. There's probably another person behind me, but I think I'm like the only one. And now that I'm older, obviously I know more and I realize that hey I am a minority in here, I am a minority in this industry, and that's something that I should think about because I should know why obviously.

He said he is not aware of the problems that women and African Americans had in aviation in the past. It is like that is ancient and unknown history to him. Even so, he said he knows he will have to work hard.

Again, back to how the industry is predominantly White. So, a lot of the White kids, their parents are already in the industry, so they have... They don't have as many hurdles to jump through as I do. They may have got like an earlier start. I had to go through an organization to get my experience, where their dad has a plane outside, hey son, let's go flying. So, that... And yeah I know I had to, I probably had to, I know I had to work harder. But even with me doing that, I look at it as a benefit, 'cause you know I'm still getting this knowledge. I like to learn about aerospace, so I'm willing to just get as much knowledge as possible, so.

His first realization that he would be one of a small number of blacks in the industry was during an internship with Delta.

Last summer, I did internship at Hartsfield-Jackson. I was a security intern for the Department of Aviation. And we had toured the Delta facility, and they were having, I think it was a sim session or whatever. And I didn't see any, it was like I didn't see any African American pilots. Just walking through it was like wow, do they just not hire any or is there anybody like not applying or 'cause I know there's only like five African American females that work for Delta out of their like 13,000 pilots. I know a couple African American pilots that work for Delta, but I just, when I was going in there, I didn't see. So, I didn't see any other besides white or it was...I saw like one or two females. But when I noticed that, it was just...that's when I really think about it or when I was walking around the airport. I'm seeing pilots. I probably saw an African American pilot three times out of the three months that I worked there.

He said he likes that he will be able to represent others who are underrepresented, especially other Black kids wanting to be pilots. He reflected on his status as an underrepresented person in the program:

I've realized that I am not only the first pilot in my family, but that the field I am entering is predominantly Caucasian males. I use these things as an advantage to my mind because they push me to make a difference and provide some diversity in the aviation industry, and to possibly inspire someone younger than me who has the same dreams and aspirations as myself.

Commenting on his career development journey so far, he said,

I was the only pilot in my high school, pilot in my family. Really anybody that I knew before I got involved in OBAP. So, I feel like I'm representing those kids who they want to do something different, but they don't think they can do it, 'cause I think, like

you can do anything you set your mind to. You just gotta do it. Just yeah basically back to saying where I come from. So, it's just representing, you know, yeah I guess minority kids. And people telling me they're proud of me, and when I post pictures on social media, I have people that didn't even talk to me in high school saying, 'I'm proud of you' and all that type of stuff. It's just realizing, showing how much love these people show me. That's like hey I want to make these people happy, I want to go make a name for myself in the aviation...I want to go make a mark in the aviation industry and do something good for myself.

Freda is a White female in her third year of her collegiate aviation program. Freda identifies with her mom in being a strong will woman, and she identifies with her father and grandfather, who are pilots. Even though people have told her she may not be physically suited for flying or the military because of her gender and height, she is not deterred. Teachers in high school told her that the military is not really for girls, and flying is not really for girls. Obviously, her parents had more of an influence on her than her teachers.

Growing up and becoming interested in flying, she did not realize the extent of the small number of female pilots. She said, "I just grew up around like, it never really occurred to me that there was a gap. Until I came here, and I was like, wow, there's like no women here." She believes that girls may have to work harder to prove themselves because of perceived attitudes that her male peers have. Comments heard have been on the order of, "Oh girls can't drive, they can definitely not fly," and, "Oh blond little girl, like, there's no way you can be as good a pilot as me." She said,

You just have to like, roll your eyes and just be sassy back. That's all I've learned. Like, you just have to like, not let it affect you. And so, you just have to like, not let them get

to you too much, because you know, I know I'm a good pilot. And I don't have to prove it to anyone, but it does become easy to want to prove it to people. But I just feel like, I don't need to. Because it's like, why waste your time? You know, I'm doing what I need to do to get to, like, where I want to go. And like, their opinion doesn't really matter. If they think I'm a bad pilot, then they can.

She also expressed a concern that she might not be taken seriously by a captain in the cockpit because she is a female, at least by a captain not accustomed to having a female in the cockpit. She said, "And that's the only thing I'm nervous about, because there are some captains that are older, and maybe not used to having a female in the cockpit. And...they might not take me serious." She said that guys are used to being on teams that are only guys. For example, they may have never played on a sports team with girls. Therefore, they are only accustomed to speaking with guys like they do on sports teams. As a flight instructor, she has had trouble getting male students to take her seriously, and she has had to forcefully establish roles and boundaries. In particular when teaching male students from some middle eastern countries, the students have trouble taking instruction from females. She said the biggest hurdle she has gone through as a female flight instructor is "being a flight instructor and being in the like, point of power."

Faye is a White female in her fifth year of her collegiate aviation program. Faye has five brothers and no sisters. She is accustomed to being around lots of males. She said, "Well, I've always been on the smaller side of the ratio, where, males versus females. I have five brothers, no sisters. So, it didn't really seem odd to me, at first because I just had so many brothers, so many males, in my life so it never really seemed kind of odd." She first became very aware that she was one of very few females in the collegiate program in one of her professional pilot

classes. Although the class was taught by a female faculty member, Faye was the only female student. She verbalized an observation: “So, I always thought that was really cool. So, and what I’ve noticed is, usually when females are in this field, they always have really dominant personalities, because they have to.”

Some women believe they need to work harder than their male counterparts to demonstrate they earned their position through work and performance and not because of gender. Some do not hold that belief, saying they work hard because that is the type of person they are. When asked if flight instructors believe they need to make female students work harder, Faye related,

Honestly, I think it depends on the person. That was a really good approach with me. I think I do better with negative reinforcement actually. Like, someone pointing out things that I did wrong and, you know, doing like that, and not the things I did right. So, then I realize the things I did wrong and do them better. But, at the same time, you gotta know when to tell them, tell your student that, hey, I know you’ve been doing it wrong for a while. But that time you did it good. Good job. But I guess it does depend on the person, and I think as, a flight instructor should be able to realize the different style of teaching, ‘cause some students, it doesn’t matter the gender, but, some students might need a lot more positive reinforcement. You know, it gives them that confidence. They might need that extra confidence boost. But, myself, I did better with negative reinforcement. I needed someone to tell me, you know, that really sucked. You need to do better. So, I guess it does just depend on the person.

When asked specifically if she feels she has to work harder because she’s a girl to prove herself, she said,

Yeah, I would think...I've actually thought that exact thought. I do have to work harder. I still feel that way, because I am a girl, because someone, you know, I might...That specific situation, my instructor described. In my future, I could get a job and then if my coworkers are like, 'Oh, well, you know, you only got this job because you're a girl.' And I wanna be like, 'Well, you know, you wanna, you wanna fly with me? I can prove to you that I actually got this job because I'm good at what I do, not just because of my gender.'

Faye is another female, who has one or more grandparents that believe girls should not be pilots because of the perceived danger involved or that it may be too difficult for girls.

And, when I was telling her what I wanted to do...and actually visited her a couple of months ago, and she's like, 'Are you still doing that flying thing?' And I was like, 'Yeah, I'm still doing it.' And she goes, 'You know, if it's too hard, you can drop out.' I'm like, thanks, I appreciate that, and she was like, 'Well I just don't want you to do something that is just too hard for you.' And in the same situation, my brother's girlfriend, she's actually going to school to be a doctor and almost the same conversation, not even like a breath later, she looks at him and she goes and, 'You know, your girlfriend, I had a friend that went to school to be a doctor, but had to drop out because it too hard, and she became a dentist. You should talk to your girlfriend about that.' And like, becoming a dentist instead of being like a surgeon. And my grandmother is 83.

Faye believes that many girls are just not aware of the possibility of becoming a pilot. She spoke about a Facebook group just for female pilots to share experiences and stories. She said that many of the stories talk about encounters with young girls who are made to believe that girls cannot become pilots. She also talked about raising a family as a female pilot. She believes she

will be able to raise a family but she does think about the struggles that may occur regarding her employment. Even her mother, who supports her career choice spoke to her about perceived difficulties.

‘Cause me and my mom, she’s my best friend, I love her. But she was like, ‘Well you know, if you do that, you’ll be on like a really difficult schedule and if you wanted to start a family, you might not be able to, like immediately.’ And I kinda looked at her, I’m like, ‘Mom, did you really mean that?’ And she goes, ‘Well no, but I just wanted you to think about it.’ And ‘cause that is kinda true, ‘cause a lot of the girls if they get into this field, they will have to start a family a lot later.

When asked why she thought that, she said,

Well I guess the schedule, I wouldn’t say that the airlines discourage it, but it is now, you have to, I think there’s like a specific time period where you have to stop flying, because the morning sickness could be so bad. You’re, you’re so pregnant, you can’t, you can’t even touch the...It’s not safe, yeah. I feel like that’s going to be me, if I ever decide to start a family. It’s gonna be like, six months pregnant, carry my bag. See, that’s incredibly important, because a lot of women are afraid to start that family, ‘cause they don’t know if they’ll have that spot when they come back.

Other thoughts she expressed on the matter of having a family:

But maybe a lot of women feel that if they have to wait to start a family, also, during their training. They can’t really take time off, you know, like, that’s a significant commitment, having a child. So, you’ll have to, have time off, you’ll have to always be home at night time, and things like that. So, if you were in your training, and you ended up having a child and starting a family, it might, you know, you might look at it, well, now that I have

this family, I don't really have the time to commit to this career path anymore. And you might stop flying, and stop doing that kind of stuff, which is why a lot of women wait till later, in their career. I've noticed my friends I have and women I know through the Facebook group and things like that, a lot of them wait until they're in their later 20s to early 30s and mid-30s to have children, because they're trying to get set in stone in their career, be at that facility for like two years, or things like that, and be able to get the maternity leave and things.

Faye also believes that male flight instructors behave differently when training female students.

She said,

If it is across the board, I don't know if they know they're doing it, but I do think that male flight instructors treat women pilots differently, whether they know they're doing it or not, and I hope this isn't the case but I've heard that, you know, in that specific situation that certain instructors are easier on the women. You know, they're like, you know, 'They're a girl, oh they're just over minimums, but I guess that's fine.' You know that kind of thing. They're easier, they're softer on the women because they're seen as, they're seen as soft creatures so they're, and, you know, and following up they're also soft on them. But because of that, maybe some people, like my specific instructor realized that, 'Oh, maybe they're going to be softer on you, so I need to be specifically harder on you, so that way I can make sure that you're better than, what they, or their expectations.'

She believes that the younger generation, her generation is more open to diversity, mostly because that is the world they have grown up in. When their parents were growing up, they were not exposed to females being pilots. She also believes she is a representative of other females

going into the pilot career because there are so few of them and because of on-going perceptions and stereotypes and beliefs about female pilots. When asked if she felt like she was a sort of a pioneer, she said,

I guess I do, in a sense, 'cause I've actually said this specifically so, I was talking to a friend of mine and another female pilot. She was just doing something that I just did not agree with, and I said something along the lines of, well she's a girl in this field, she needs to act with a little bit more respect. 'Cause she, you know, there's so few of us, I don't want her giving us a bad name. But I wouldn't say I feel that specifically about myself, like, oh I'm a pioneer, I need to make sure I do specifically good. But I feel like as a group, we should all feel that group sense, that we should all do good. You know, we should all excel, we should all do better.

Knowing there would not be many other females in her program, she said in the beginning, she was always on the lookout for the other females so she would have some female friends in the program.

But, when I was first in school, I guess maybe this is relevant, when I was walking to class for the first time, and you like look around, you're trying to figure out where you want to sit. I would always make sure I sat next to a girl. If there's a girl available in the classroom. Because I always knew that I would have a friend, I could talk to someone. And it was always really easy to strike up a conversation like, we can always make a joke like, 'Oh, ha-ha, we're the only girls in this class.' That kind of thing. So, I will always consciously, like specifically, make sure I sat next to a girl. That way I make sure I had a friend. So, hmm, I don't do that so much anymore, because I now know people, I walk in a classroom I see like, I'm like oh, there's 10 people I know, so I'm fine. But, freshman

me and sophomore would always look for a girl to sit next to. Yeah, and they probably all, at least if they were me, I would have walked in and saw, oh well, if this is gonna be our group in the next, like forever, I'm gonna go sit with the girls.

Robert is a Hispanic male in his third year of his collegiate aviation program. When asked if he considers himself as being in an underrepresented group, he responds that he does not feel any different than anyone else, or that he is treated differently.

Well the thing is I don't really feel treated different, like I'm being treated differently. You know, just aviation's such a small community. But sometimes I mean I know that, you know, to a certain degree, my heritage is different, you know I'm, you know, Hispanic Latino. Mexican. But, I don't really feel treated different in any way. If anything, people are more curious enough to ask me, you know, how things been like they're more, they approach me more and ask me questions and they're more friendly towards me I would say...But...I would say I feel, I know I'm different, but I don't feel different. If that makes sense.

He said that race issues have never really crossed his mind or entered in his thinking. He does compare race issues in the U.S. with race issues in Mexico and other places saying that all nations have certain groups that are treated differently. He said in the U.S., the focus may be on female, White, and African American, while in Mexico, he said that there are two types of Hispanic, those who are considered native and those who are of European Spanish heritage, which are more White. He said he grew up in a family where race does not matter, so the issue never crosses his mind.

But I grew up in a household, where race didn't really matter, so I, race never really crosses my mind as I'm going through my career. Because you know I think everybody

has qualities. If you wanna do something, you will do it yourself no matter what. You will push yourself to do it. You will find a way to do that.

He said gender and race do not matter, but he also acknowledged that he is focused on his own goal achievement and maybe he has missed issues others may face around him. He considers any struggles to be of his own making rather than due to the environment or race.

I mean, there's been times where I've thought about was it really my race, but then I really think about it and it was actually it's more from myself, because I don't really think, you know. I mean I have thought, could this have been a race issue, but then I really think about, more about, you know, get a bigger picture of what is actually happening. And when, it could also be my personality, I usually tend to blame myself for not achieving something, so then I figure out different ways of approaching a problem. And the second time works, so I'm assuming it wasn't race.

He considers himself as being a bit different than others in terms of how he approaches life and how he does things. He said he had a varied upbringing in terms of living in different countries, being bilingual and moving quite often, which allowed him to experience many different environments. He said, "I'm the special participant because for everything that I've done, when I've asked other people, I find myself answering the opposite. Just overall, I feel like I've had a different life, so I feel like I'm a little bit different in a way. I'm not sure why." He considers himself to be a bit different than average because he is from Mexico, but is American raised, and that drives his thinking about the world. He carries his Mexican culture into an American regional culture, but he maintains that, "It's in a way, we may look different but we're all pretty much the same up to a certain degree." He does believe that attitudes about gender and race vary among people of different generations.

He said he wonders why there are not more Hispanics in aviation and STEM disciplines overall. He believes that the concentration of Hispanics in those fields varies among population centers in the U.S. and that one would see more Hispanics in the disciplines where there are larger concentrations of Hispanic people. He has one idea that perhaps a Latino physical characteristic may keep many Hispanics from pursuing aviation, which is that a large majority of Hispanics have stigmatism, which may affect decisions about pursuing aviation, thinking they need perfect vision to become a pilot. He also thinks that Hispanic people may have a fear of:

...going somewhere unknown, where they know that they're not gonna be a lot of them, there's gonna be a lot more, you know, what do you call, White man, White men.

They're going to be the minority, they're gonna go into an industry where they're gonna be the minority and they might not have that leverage. I mean fictional leverage, or fear of disadvantages that they might have in their head, or you know, say it's subjective. I mean, I think, I think it's also the way that I was raised, the fact that I grew up to not really have fear of anything and just kind of expand and broaden your horizons until you reach and discover new things. And I think it's the fact that, you know, as many people who aren't very experienced to many things, they're afraid. I think one of the main things that I've noticed throughout people that the fear of something, stops them, it's like fear's a big barrier for a lot of people that it inhibits them from continuing on to being, discovering something in them.

He said he has made efforts to introduce Hispanic youth to aviation, i.e. being a representative of his cultural heritage.

I've tried to search for ways on how to get the Hispanic community, as you said, there's underrepresented people in the aviation community, so females and anything else that's,

this is also like, you know, it that technically racism for trying to help find work for the underrepresented people, you know what I mean? But I do, technically, as you said, you know want the other people to, you know, succeed in this kind of career, to kind of invite them and kinda diversify. I think it's true because I think the more you diversify something, the more valuable it becomes because you have different views, different ways to solve a problem and the more it can grow. So, I mean, I've tried to contact like Hispanic family centers in Nashville, and volunteer with them. And while I'm volunteering with them and helping them I'm kinda, you know, I'm an aviation industry person so I talk to them about it, I tell them if they have any questions come talk to me. What would I advise, would I tell them, is to not be afraid to experience new things and to give it a try. And you know some people may not like it, because they physically get motion sickness, or stuff like that, but if they have the aptitude to do it, to not be afraid and pursue it.

Harvey considers himself as being African American. When he was considering and planning to become a professional pilot he did not consider that he would be one of a very small number of African American pilots in the industry. When asked if he knew he would be underrepresented, he said, "At first, no. It didn't really hit me until my first day here." When asked if he knew the demographics, he answered, "No. I didn't, I never really considered it. But then like got into my class and there was only one or two other African Americans, I just said, "Wow. There's not too many of us compared to like 18 other kids." When asked what he thought about that, he said, "It felt, it felt a little off at first, it just took a little bit of getting used to. But then, I think it also hit home once the next year hit and they just realized that this wasn't for them, it's too expensive for them to afford. They just left, so then just left me in my class as

the only African American.” He related that he has a desire to represent African Americans in his field.

Well I guess I have to represent, and just show that I can do just as well as everyone else. And I would just keep studying my material so I can make sure I give the right answers if I was called on, ‘cause I didn’t wanna look like I’m an underachiever just ‘cause I’m African American.

He said he feels like other people might not believe he would be able to achieve as much because of his race or background.

I do feel like that, even though because I don’t really know from personal experience, but I’ve seen it throughout high school to where like if they had like a poor like background, like family issues, or just money issues or anything of that sort, that they tend to not do as well in school, so I mean, I don’t want my instructors or teachers to look at me that way. So, I wanna show that I can actually get out there and do what I have to do.

He also related,

Well I guess the only thing is that, just like my hope that since I’m here at the end of the program, then maybe I can go out and be that role model for somebody else, to go to that distance, whether it be the flight instructor to where they can like look up to me, whether it’s the new class coming in or one of the African Americans underneath me, just look at me and wanna do what I do.

Henry is an African American male in his fourth year of his collegiate aviation program. He is originally from a Caribbean country, and his family moved to the U.S. when he was a young child. He is the only pilot in his family and he has one older brother. He receives support from his family although they initially questioned his ability to succeed because as he said,

“...they didn't think that I'd be able to do it because I was like, came from a class clown to you know now I'm graduating with honors and stuff, so.” He seemed to indicate that his parents came from a lower socioeconomic situation, and that may be a factor that drives him to succeed in his career goals, and also how he views others.

He did not think about or realize that he would be one of a very small number of racial minority students in his program. He said it first hit him on the first day of class. “I guess when I went in our first ground school and I saw it was me, and two other guys. I looked around I was like hmm. I see me and a Hispanic, I'm like, hmm, looking good. I like it.”

Hap is an African American male in his fourth year of his collegiate aviation program. He considers himself as being black. He said, “I just say black. Just a black man.” He did not realize or think that he would be underrepresented in his college program. When he was in high school, he had two African American adult acquaintances who were pilots that advised him so he formed a kind of a picture that there would be more African American pilots than what actually exists. He said,

And there was actually...one guy, he actually flies for the FBI and he was of course, he was a black guy, and he kind of led me to, just kind of steered the way, like hey, this is what you need to do, this is what you should do, da, da, da, da, da. And there was another guy, he was a pilot but he wasn't there as much, so, I thought that was pretty, I thought, I was like, okay, this is gonna be pretty even you know mixed, but then when I came here I was like, wow, it's just me and three other guys, so I mean, well, I wonder how the airlines are.

He related how the realization made him feel about being in the program.

Well, it started a little while 'cause it was, I don't know, it was kind of weird 'cause I just had, it was kind of like a gradual thought. I'm like, well, I really am the only Black kid here. Of course, one of my friends was Hispanic and everyone else was White, but it was, it was...it was kind of like well, I got, it was like, well I gotta make it now, not only for me, but for my family and other, and other Black pilots so that they can, like other young children so that they can see that it is possible and that there are other Black pilots out there because, and then I was thinking to myself, I have, I've never really met anyone from the airlines that, that did look like me or anyone that was, that was doing [Part] 135 that did look like me or any other thing other than these two guys. And then, I don't know, it was just, it just never occurred to me and I just started thinking, I was like, well, yeah, I really gotta do this now. And not only for me but for those kids, for somebody else.

He also perceived an opportunity to help others kids by demonstrating that others like him can become pilots also. When asked why, he said,

Well, 'cause I think that a lot of kids don't think that they...a lot of kids that are Black don't think that they can succeed 'cause either teachers or their parents never really tell them that they can, and I've seen in his...mainly because I've seen that through, like other people, I don't know, it's kind of weird, 'cause I'm kind of a strange guy when it comes to talking to people and knowing people. But it's kind of like they don't see that they can...that it is possible for them to do anything else other than I guess staying wherever they're from or even going to college is a far-fetched idea and not...let alone flying an airplane. Even though they may say, said that they want to, but it's kind of like, oh, I don't think that I can do it. Well I'm not going to do it. You know and it's kind of like

well if that's what you want to do, you can do it too so...I mean, like I've done it enough and, and it's like, I don't know how to say it, it's just kind of like, if you know, know me, it's just kind of like, like I'm not, I'm not, I'm a little laid back, little, not necessarily lazy but I'm not like on it, on it, but it's like, if I can do it, well you can do it too, you know.

But, yeah, it's, I mean it was just like, hey you, the, hey, like you can do it.

As he continued in his program, his thought of representing for others continued to develop even more, as he said,

Mm-hmm (affirmative), more so, it's more so later on as you're going through it, mainly because you see a lot...through the school, you see a lot of other guys coming through, just doing business or something else, you know, just like why isn't anybody saying that they want to do aviation? I guess either they just don't know about it or they just don't think like they can do it. And it's just kind of like, well, hey, you can do it, I can do it, you can do it.

Hank is a Black male in his second year of his collegiate aviation program. As one of a small number of African Americans in the program, Hank looked around for others of color. He said he met his first Black flight instructor after his first or second year, and that pumped him up a bit. Maybe he thought that most Black aviation students could not go the distance, but then he found one that was a flight instructor. He said,

And then, I will say, after, I will say after my first/second year into it I finally met a flight instructor that was, that was Black. And it kind of just, well, you know spiked me up a little bit and said wow. Okay. This is somebody I can relate to. You know, I'm pretty sure he started exactly where I am now and he's here at this point so, I would like to work with him. You know, because I feel a lot more comfortable. You know, I'll feel a lot

more at ease working with somebody else because I feel like they can relate to me more and there's more of us to talk about. There's, we have the same thing we share in common. You know, him talking to me and like teaching me different things. It helped out a lot more. You know, it made it all a little bit more easier for me.

Hank described a social media site called Aviators of Color. He described it as being a motivator for aviators of color because you can see other black aviators achieving success. When he achieved his first solo, a picture of him was posted to the site, and that became an even bigger motivator for him. He is not sure how it will be in the airlines for him. He described himself is a person who prepares by making himself ready for whatever may come and adjusting as the situation dictates. He does not address challenges of being underrepresented specifically, but acknowledges that everyone faces challenges getting into a pilot career.

Theme 5 – Developing behavior responses. The focus of theme number four was associated with identity and how that feeling of identity changed when the participant fully realized he or she would be part of a minority group in terms of gender and/or race in their collegiate program. Some participants knew they would be in the minority prior to arrival at their collegiate aviation program even if they had not reflected on that, but even they did not fully realize the extent of the actual numbers. It appears that most participants did not realize they would be one of a very small number until their first day of class. The focus of theme number five is how the participants feel about being an underrepresented member in their program and their accompanying behavior responses that continued to develop throughout their time in the program as they interacted in their social environment. Did they experience any instances of discrimination? How did they respond to their status as an underrepresented member? How do they feel about the industry they hope to enter after graduation? This theme

characterizes the social dynamics of how they see others reacting to them as underrepresented people in a White male dominated profession, how they respond to others, and how their beliefs have changed as a result of being in their program. The label, developing behavior responses, captures the focus of this theme. The theme addresses all of the sub-questions in terms of SCCT's cognitive-person, personal characteristic, and contextual environment elements, and it addresses issues that are associated with CT in how underrepresented persons strive for self-determination and acceptance.

People who are underrepresented in a group notice they are underrepresented. People who are in the majority group may have different responses to the minority group members based on their own backgrounds, perceptions and biases. The majority group influences the environment and the conversation in many cases. Many of the participants did not consider they would be underrepresented in their collegiate setting. The female participants thought about it more than the racial minority participants. Many of the participants were very surprised on their first day of classes to discover that they were the only or one of a very small number of their group. The girls tended to band together and develop close relationships fairly quickly. Although they were not uncomfortable being in the underrepresented situation, they did generally comment that it was noticeable. Some felt the need to represent their underrepresented group well.

Andrew is originally from a Latin American country, and he moved to the U.S. when he was at a fairly young age. He describes himself as Hispanic, Mexican heritage. He said he never considered race as being a big issue, and he sees everyone as being equal and the same. He said, "Everybody is equal. And nobody is different than just because of who we are or where we come from. I haven't like seen that on me and I don't believe it." That was his attitude upon arriving

at his university, that “we are equal and we all should be treated the same.” He said he has never experienced a time when he felt different than anyone else. He sees commonality in that all are pilots, and there is no difference in anyone due to race or background.

He does believe his background may have made it challenging to pursue a career in aviation because he did not know anyone in aviation and had no role models. He had to research, discover and learn everything on his own, and with the help of those at the university once he started there. He said the campus is very diverse, so it has a diverse feel to it where everyone is basically the same. He said, “You see a lot of White female, White males, but you also just see...a lot of other people from other countries.”

Bailey does not believe that her gender ever played a role in her career decision. She said that it may have crossed her mind, but she didn’t think about it too much. But, then again, she did not know what to expect in the collegiate aviation program. She said she has had a good experience in her learning environment being on a very welcoming campus. She has heard stories of women pilots being mistaken for flight attendants, but she has not experienced anything like that yet, but she has only been in her program for one year.

She described her campus as being very welcoming to all. She has never had an experience of being discriminated against or belittled for being a female. She has never felt the need to prove herself. She did not think about being underrepresented as a female in aviation, although her early role models were men. On being a female on the predominantly male aviation campus, she believes the school is very open for women. She has never experienced a time in which she felt like she could not be a pilot because she is a woman. She also claimed she has never felt outcasted or isolated, or that she had to prove herself as being capable because she is a female.

Caleb is an African American male in his second year of his collegiate aviation program.

There was a point when he realized there are not a lot of Black people in aviation. He said,

Like, one day I went to, I was flying out of, North Carolina, and believe it or not, I looked, I don't know how I was able to see the pilots sitting on the aircraft we were flying, as we were getting into the aircraft, and I saw one, I was like, I saw was a Black guy, I was like, oh, wow. Okay. Okay. Because he was the first one I had seen not on TV or anything. But he was just like, oh, that's pretty nice. That's, you know, I mean, it's not that I'm saying that, oh, other races, no, it, you know, you kind of are proud to see your fellow, I don't know how to say it, your fellow people advancing. And that's, I mean, that's good, because I hadn't seen a Black pilot, like, face to face, mostly, most of them I used to see was, like, other races. Every other race, but I hadn't seen a black pilot face to face. I had seen them online. But, never face to face.

About how he views his place in his program he said,

It's you know, I'll be like, you know, so what there's no other Black people, you know? You're not here for them. You just got to be driven. If it's what you want, then go for it. Like, I was watching that movie, The Tuskegee Airmen, you know? If they would have given up, I don't think they could have, their story could have been told. Or, they could have inspired other people to follow suit. So, I mean, yeah, you'll have pitfalls. You just got to remember, you're doing it for you, and you just go to take responsibility for yourself. And drive on, you know, drive on.

He has not personally experienced many situations where his race was in play, but he related one classroom experience he thought was amusing.

There was one time, uh, (laughs). Well, the teacher made kind of a joke. He didn't know. We were in class, and I was the only, well, there was three of us. There was three Black guys in that class, but some reason, that particular day, I'm the only one who showed up. And, and the teacher was looking for the marker, so he was reaching out for it, and you know how you make a comment, like, you're, you're reaching for something, you're like, oh, Mr. Paper, come here. So, the teacher looked, looked at the, the marker and he's like, oh, Mr. black guy, come here. And everybody turned around and looked at me, and it was kind of funny at the time, because, like, I'm the only Black guy. So, it was like Mr. black guy, so everybody started smiling and looking back at me. I mean, they wanted to see my reaction. I was, like, oh. Yeah, but for getting, like, a feeling, like a bad feeling, I guess after the second semester, I was, like, oh, there's not a lot of Black people here.

He acknowledges that there are very few Black people at the campus, but said it doesn't matter and you get used to it after a while. He said some people may look around and say that the program is not for Black people or Asian people and so forth, but he said that he is doing it for himself, and not for others. He is there because he wants to be a professional pilot. He said you have to be driven to do it.

It doesn't matter if there's ten Black people, or one Black person. It don't matter to me. I'm, like, I'm just here for my education. You know, and plus, it, it doesn't bug me. I was in, I was in the military, combat arms, like, our drill instructors used to tell us, there's not a lot of, minorities in these jobs. You know? Like, in my platoon, I was the only Black guy, so I was used to it. Like, I used to, they used to make a lot of jokes, so I was,

like, oh, the token Black guy, you know? So, I was, like, I was so used to, used to it that it didn't matter.

Emily is a White female in her first year of her collegiate aviation program. Talking about why more women don't get into aviation, she surmised that a lot of women like aviation, but it's one of those things where it's such a male dominate field that they might be worried about doing it. She said she doesn't have a great number of friends at her school, but everyone there is very respectful and helpful. She had one type of experience outside of campus seeing how people don't typically see women as being pilots, about which she said,

I got this tattoo like...a year ago. So, before I even got accepted here I got it. And, I work at a restaurant, and every day after I got it some guy would ask me, just like a different guy would ask if my dad was a pilot. That was the main one. If I got it because my dad was a pilot, and then another one I got was if I was a flight attendant. And, I actually wrote a paper about this first semester. Not one single person asked me if I was a pilot. And then one day there as a guy and he saw it and he asked me and I was so shocked about it. I was like, did you really just ask me that? And I was like, yeah, I am. And then when I would tell the people that asked if I told them that I was a pilot, they would act shocked that I would be a pilot. So that was, that was the first...that's really the only thing. I feel like anything I experience like that is outside of this school.

Whenever someone asked her questions like that she said she became really annoyed and irritated.

I remember I'd get really annoyed. I'd get annoyed and irritated that it was just always the same question. That no one just thought to ask if I was a pilot. Just annoyed me.

Talking about experiences her flight attendant sister has had, she related the following.

...it's really rare to get a female pilot when you fly airlines, and she said whenever there is one she can see, if she's a flight attendant on the flight, she can see all the passengers get all worried, and she said when...even if they don't see her when they get on if she's the captain and she's talking over the intercom she said as soon as her voice comes over the intercom, all the passengers, she can tell they start getting worried. But she said the passengers really do get all tensed up and worried when a female voice comes over. And even her boyfriend, he's really cool, I love him...but I guess, even he and all the other pilots make jokes about female pilots, like joking why they don't wanna fly with them. So, but, I know he's just kidding 'cause he really supports what I'm doing.

She related the typical picture, described by her flight attendant sister, that many people have in their minds when they are flying on an airline, and her reaction to the description.

...when you get on an airline pilot you see women flight attendants and then the two pilots there. And I feel like that's just what's in people minds. So, when you actually get on and see women, people are shocked about it. Yeah, that kind of upset me. I told her, I'm working just as hard as anyone else here. And, I'm not gonna get...if I was a bad pilot it's not like I'm gonna get a job flying people, hundreds of people. So, it's just, I don't know. It did upset me when I heard that because this is my future.

She has not experienced any issues or discrimination on her campus. She has personally experienced only one comment, and that was from a construction worker on campus. She said, There's some construction workers and I saw the same guy a couple of times whenever I'd go to class or something, and one day he stopped me and he's like, 'Are you the only girl on this campus?' And I was like, basically. He's like, 'You're the only girl I've seen in the week I've been here.' And I was like, yeah, so, other people notice it.

She said the campus is very welcoming and a good place to be. Everyone around her is a help to her succeeding. On her campus she finds the environment to be very respectful to everyone. She said that all the faculty and instructors treat everyone the same. She seems to have expected on a male dominated campus that she would encounter sexist remarks and behaviors and men looking down on the women students, which is why she found it shocking as she said that it isn't that way. She said everyone there makes the women feel better about themselves.

Edward is a Black male in his second year of his collegiate aviation program. He has never thought about being a minority in the aviation industry, saying it has never crossed his mind. Becoming a pilot is simply what he wants to do, and that is all that matters. He also acknowledged that he knows there are very few females in the industry, but has never thought about it in terms of race. About being one of a small minority in aviation, he said,

I never thought about it. Yeah, it never crossed my mind. It was just what I wanted to do and I guess I never even thought about. That that was something that was going on. I don't know. I guess I never really looked at, like I knew like there were far less females in the industry, but I never thought of it from the viewpoint of race so, I never thought about it.

When pressed about how it feels to be Black in his program, he said, "I'd say just being in this state or this town. It's just something that you know. So, I guess the simple answer would be just moving here was like the biggest thing, and you don't always get positive interactions with people around the community, but that's the only thing I could possibly say about that." He claimed that he has never thought about the fact that he will be one of the underrepresented

Black male airline pilots. He is the first pilot in his family, and he said he is simply focused on getting there. He finds pleasure in doing well and being a positive influence to others.

Allison is a White female in her second year of her collegiate aviation program. She has always been aware that she will be one of the few women, but has not really considered what it means to be underrepresented. She likes to see everyone as being the same, just doing what they are supposed to do. She likes having other girls around for girl friendship and support, and she has that friendship at her school, but she has not thought about how that will be in the airlines. She knows that there are people who have different attitudes and beliefs about women flying aircraft, but she said that does not bother her. About what it means to be an underrepresented student she said, "So, I don't know, it's a really complex definition, y'know. You have to be open-minded and you can't be sensitive. You have to work hard, but at the end of the day, you're just a student."

She doesn't know why more women don't go into the career, but said maybe it's monetary, maybe parents' influence, and becoming a pilot isn't that popular of a career choice. She acknowledged that she thinks women typically are a lot harder on themselves than guys are, and they're a lot more self-critical and less confident. She said women across the board are ten times more likely to be less confident than men are, just because they face so many pressures.

You have to be perfect, you have to have the right hair, the right clothes. So, maybe that plays into effect about them, they may wanna be a pilot, but it's like, could I do that?

Y'know, could I be good enough to do that? Because I face that, like when I was first coming through, I was like, is this right for me? And like, am I gonna be good at this?

Like, am I gonna make a fool of myself? So, maybe that could be in effect.

She also said,

Oh, well, I'm just, like, thinking about, I haven't read research, but I'm, like, thinking about my experiences and it's like women are always less confident than men. Always, 'cause they just face so many pressures. Like you see the girls and it's always talking about, y'know, like, the perfect magazines and how much pressures we face, so I feel like girls are way less likely to have the confidence to go through this than the guys are.

'Cause guys'll walk down and they're just like, 'I got this.' Like, y'know, it's me. But girls are typically not that confident.

About people who tell her she will have an easier time moving into the career because she is a girl, she said,

I get it, and you know, it's not something that I can deny. It is easier for women to get interviews. It just is. Y'know, companies wanna seem like they're being fair and they're an equal opportunity employer, and I get that. But I think early on because I was told that, I established this mentality that I don't ever wanna be told that it was easy for me because I was a girl. I work harder than probably 95 percent of the people here because I do know it'll be easier for me to get an interview. I don't want anyone to be able to say that, 'You got hired because you're a girl'. Like I work incredibly hard, obviously. I've gotten all of my ratings. I got my CFI the year to the day that I soloed. Year to the day. So, I work incredibly hard because I know it's gonna be easier for me...And I don't think it's fair. But if I do get hired, I don't want anyone to be able to say that I got hired because I'm a girl. I wanna say, okay, get in the airplane with me. Like, see what I know. Tell me I'm not a competent pilot. Y'know? So that's kinda the mentality that I took on whenever, like, I was going through because I knew that I would face opposition.

She said, “When I hear people say, ‘Oh, well, they only got this far because they’re a woman,’ I just kinda have to let it go. It's not something that is worth being upset over or fighting over.” She said she doesn’t want to get upset about other people’s negative attitudes about gender or race. About being underrepresented, she said,

Y’know, at the same time, you’re different from everyone else, but you’re also just the same as everyone else, but that's just something that you have to remember and, but not let affect you in a negative way. Y’know, it's like, yeah, you may be underrepresented, but so what? You’re just like everybody else, it’s not gonna affect your career outcome, y’know? It’s like, yeah, I may be more likely to get a job interview, but they’re not gonna hire me if I’m not qualified, so it doesn’t mean I can’t, like, I don’t need to work just as hard as everybody else.

At her school, she said the girls hold each other accountable regarding how much they apply themselves in their studies and in their behavior. She believes that a girl in the program who is slacking off affects how people view all the girls in the program.

Fran is a White female in her third year of her collegiate aviation program. She believes that more people are not in aviation because they do not have awareness of the career and what it takes to get to the career. She said that if she had not had an internship job at the airport, she would not have known how to pursue the career she knew she wanted. “It didn’t really cross my mind until I was doing that internship, ‘cause hanging out at the airport all day, I was around dudes all the time. There were not many women.”

Some people think that girls get special treatment because of the interest to get more girls into aviation. Some girls believe they must work harder to prove themselves. Some guys attribute checkride passes to being a girl, and she related that some guys even believe that female

DPEs are harder on guys than girls, and has heard them say, “Oh, she failed him ‘cause he’s not a girl.” She related the following story.

Have you heard about the female DPE? Everyone says that she’s sexist for girls and that she always fails the guys and passes the girls. So, a lot of people have stopped using her because of that, but I’ve found this group of [flight instructors] who always pass their check ride with her. And they love her, they take all their male students to her as well, because what you hear, because she’s like one of the only female DPEs in the area, what you hear is that someone failed. You don’t hear the why they failed. I have a friend, he went to her for his CFII check ride, had no CFII lesson plans and no nav log, and she failed him. Yeah. But when it’s portrayed to other people, people leave out all the stuff he did wrong and just say, ‘Oh, she failed him ‘cause he’s not a girl.’

She believes there is still discrimination, but she also believes it is offset these days due to more empowerment for women.

I mean, there still is discrimination but I think it’s also that people are trying to...you still have the discrimination but then you, I feel like there’s just more empowerment than there has been in the past. So, discrimination is still there. I think the empowerment is helping. So yeah, discrimination’s still up, but I mean, empowerment’s like bringing women up with it, is how I see it.

About making it in the career as a female, she said,

Everyone still has to know their stuff. No one gets by just because they’re a girl. And I think, I had a Delta pilot who’s doing some of our sims in one of my classes here, and he, he put it in really good phraseology, because he said minorities do get the opportunity more. So, like, women and other racial minorities get the opportunity to interview easier

than a white male, but they can still fail the interview. They get the opportunity, but they still have to know their stuff when the opportunity comes. And I think that was a good way to put it, not that we get...I mean, if we get that interview and then we fail it, then a white male can step in and get the interview and pass it. So, he put it in really good words.

She also related a good story about how one of her faculty advisors told her that women should not be engaged in dangerous flying activities. The story indicates that people hold different beliefs females in masculine-typed careers and activities.

I really hadn't dealt with super sexism. I don't really have any good stories until this past February. I'm doing a thesis, I'm doing the [women's] air race as my thesis, which we've talked about, and so I had to meet with the head of the aerospace department and the head of the honors college, to kind of talk about what I was going to do in my proposal. A few years ago, there was another honors student, who he did, he retraced, I can't remember the name of the flight, but it was across the United States, was the flight that he did. He retraced those steps of some famous flight and the head of the honors college said, word for word, he said, 'I don't want to be sexist and I'm trying not to take the fact that you're a female into account, but I think that this is too dangerous for a girl to do compared to what so and so has done in the past.' He said, 'I think this is too dangerous.' And he said that the guy who did that cross country slept under the wing of his plane, and that he was flying everywhere and there was bad weather and he thought it, that was too dangerous for girls to do. Oh, it made me so mad. But...I was seeing red. I don't even remember, I don't even remember what I said. I was like, I think I said that I've been training and I know that my capabilities are up to the task, and my thesis

advisor, he talked to me afterwards, and he was like, ‘Fran, your thesis needs to be to prove them wrong.’ So, he was all gung ho for me. I think another thing I said was, when he said I want to make sure you're not doing anything like that, and I looked at him, I said, I might be doing something like that. Like camping out under my wing or flying in windy bad weather. I said, I might have to do that, and I will, and I’ll be okay.

About why there are not more females going into aviation, she said,

I could see it now being the fact that more people who have a background in aviation, it’s male driven. So, I feel like more males are more likely to get into aviation, ‘cause it stems from the fact that more males were originally in aviation. It could also be, military, more males go into the military than women. Women probably just aren't exposed to it as much as men, ‘cause it’s machinery, and maintenance, and STEM math stuff. I don’t know. I really don’t. It’s just whatever tugs at your heart.

Advice she would give to other girls thinking about aviation as a career:

Yeah, I’ll, I mean warn them that there aren’t many other girls. That there’s a lot of dudes and that you will have a lot of guy friends, but I feel like just in general, well, I don’t know, I couldn't say that, ‘cause I do know some girls who most of their friends were guys, but I've just always hung out with the guys. In high school, middle school, elementary school before I even knew what friends were, I was hanging out with guys.

About guys instructing girls, she said, “I don’t think they grade differently,...I think they understand that they might need to not treat them differently as in lower the standards, but just alter their teaching.” She does not feel underrepresented: “Yeah, I don’t, I don’t feel underrepresented. I understand that I am a minority.” People do have their views about females doing certain things, as related in her thesis experience. The girls in aviation generally get very

upset when people express views that women should not or cannot become pilots, but they generally know that it is from ignorance.

Frank is a Black male in his second year of his collegiate aviation program. He never really considered he would be part of a small minority of black pilots. Since coming to his university he has realized that people notice him, and that drives him to want to do well.

I was like wow, like people actually notice that it's not a lot of African American kids. 'Cause I didn't think other students actually worry about that kind of stuff or actually even thought about it or noticed it. But after witnessing that, it's like hey, yeah, it is a big thing. Kids are actually seeing it. And, but, it hasn't played, I guess, like a role that would affect me in a bad way.

He also believes he has to work harder, but that is due to his belief that others may have had more opportunities in aviation prior to coming to school. There may be a perception among some that white kids have access to better resources such as parents who own aircraft.

Oh, I know, yeah, I know for a fact that I would have to work harder. Again, back to how like the industry is predominantly White. So, a lot of the White kids, their parents are already in the industry, so they have... They don't have as many hurdles to jump through as I do. They may have got like an earlier start. I had to go through an organization to get my experience, where their dad has a plane outside, hey son, let's go flying.

He said he has experienced no discrimination at his school. Even though he may have expected some discrimination or barriers, he said he has not experienced any, and therefore his expectation has not been his reality. He said,

Not here. I love, the program loves me, and I love them. So, I haven't experienced anything since I've been here, 'cause even the teachers, the professors, look at me like even when I answer questions, they like that. 'Cause I always go to the professor's office or I'm always trying to get help. So, I will make it known that hey I need help, I want to know, I'm trying to get as much information as possible. So, I'm actually really cool with a lot of professors, so I haven't experienced any bad experiences.

Upon reflection, he realizes that his actual experience has not been the same as his expectation regarding his minority status.

You gotta set your mind. You gotta stop thinking about what the outside world thinks. 'Cause that's where we come into you're thinking hey maybe you won't do this 'cause you're a minority. I think you have to take out the outside world and just focus on yourself, and think about how you know that you want to do it.

He does believe that a White male instructor may discriminate and treat a Black student differently, but he has not experienced that, also saying that his school has not had that problem. He also believes that his generation is much more accepting of others than older generations. When asked what it means to be an underrepresented student, he said,

I think it means it's just, it just shows, it builds character. It shows that anybody can succeed not only in aviation, but in any field. Because some people look at...I think the primary reason people are afraid, the aviation industry is so small with Hispanics and African Americans, and Native Americans. I think it's so small, because people are afraid. They think it's too hard. They don't want to become a pilot. They think it's too hard. People look at me, 'Wow, you're a pilot. Wow that must be so hard.' Like when people tell me they'll say, how is being a pilot? Isn't that hard? Aren't your classes

hard? And me, I would say...I tell people no because it's something that I want to do. But you can see how it can be hard to someone else...So I guess something's for everybody. I think being underrepresented, it shows character, showing that you can succeed, that you can put your mind to anything.

Although his expectation has not been the reality at his school, he still has an expectation that he may experience discrimination in the industry.

I guess the only barrier would be I guess dealing with people who discriminate. I guess that would probably be the only real barrier that I can think of, 'cause that can affect you, that can be somebody who's doing a job interview or a person that works at an airline, they might discriminate too, so they might not hire you. I feel like that would be the only benefit simply because everybody's here for the same exact thing. I feel like that would probably be the only way somebody else prevented me from moving forward in life simply because they don't like the skin of my color, I mean they don't like the color of my skin. And I think that, that's probably the only one I can think of.

He said he looks forward to being an African American pilot walking through an airport.

So, I just look forward to the industry and knowing that I could be walking through the airport and people are looking like hey that's an African American pilot there. So just that attention, me, whether it's negative or positive, I'm gonna take it positive, 'cause I like it to. That's fine with me.

Freda expressed a realization of the dichotomy of attitudes about gender stereotyped career fields, such as pilot verses flight attendant and doctor verses nurse. She saw a differentiation in attitudes regarding careers that have leadership roles and careers that are more

of caretaker roles. She experienced negative attitudes about girls becoming pilots from teachers in her high school.

Well, some of my teachers in high school, I went to a private Catholic school, and a lot of them were kinda set in their ways, and they were very like, olden, like, you know, like, you're being a pilot? And then they're like, 'A military pilot? A girl?' Like, 'You know you'll have to do push-ups.' They really have said that, and they're like, 'You know you have to do push-ups?' And I was like, yeah, I mean, I'm in sports you know, I play lacrosse, you know. I'm in track, we do push-ups. Like, I can do that. And I can also fly planes.

She is annoyed by comments such as "Oh yeah, of course you passed that checkride. You're a girl." And I'm like, I passed that checkride because I studied for like hours on end, and stressed for it, and worked." She also said,

But they think that checkrides, because I'm a girl, it makes it easier, they're not gonna be as hard on me. And I'm like, well, no, I do work just as hard as you guys. You know, it's not like I got this rating easier. And that's the only like, really big issue I've had in aviation.

At times she was the only girl in her aviation class. She said,

...I was actually the only girl in my entire CFI class, and the only girl who interviewed as a CFI, this round of interviews...So that makes it interesting. You know, it's just all guys and they're kinda like, some of the things they say, they're like, 'Oh shoot, we forgot we had a girl in here.' They're like, the guys, they'll start joking around, and, 'Oh, wait, we have a lady in here.' And I'm like, oh my gosh. Yes, It's okay.

She teaches male and female students, about which she said,

And then I have two students that are both guys. I'd love to have girl student just to be able to be like, hey, like, I feel like I could really, like, help her. Especially as private students, because you know, that's your first, you know, taste of flight. So, if you have a bad experience, you know, it really could, like deter you from it, even though you would like, literally like, love it. You know, instructors have a lot of influence over that.

She has an impression that guys when with a girl will just want to do everything thinking that the girls will not know how to do it. As an example, she related,

And I've seen that a lot with guys as well, they just want to do it, they're like, 'Oh, we'll just do it for you.' Like, 'We're just gonna do this.' Like, you know, 'Just let me do it.' And I'm like, no, just 'cause I'm a girl, I can do it just as good, like I can do this. Just let me do my part, and you do your part, and like we'll work together. And like, when that, a girl comes in, the teamwork aspect just goes out the window.

She also said,

Yeah, because sometimes guys will be like, 'Oh gosh, you know, flying a girl. I wonder how she's gonna do? Like, is she a good pilot?' You know, they talk, and they're like 'What about that girl, what about...?' I hear 'em, I mean they're in that flight lobby, I mean I was a dispatcher as well, and I'm like, it's like, you know, you guys are talking all the time, and gossiping, and gossip is just as much...yeah, I can hear it. And they're like, 'Oh, I wonder how that girl flies, you know?' And you're just like, oh shoot, like, they talk all the time, about everyone, especially the girls, because there's not many of us. Or if there's a new girl, they're like, 'Oh, I wonder if she's a good pilot? You know. Oo, I'm gonna go fly with her and I'll tell you. Oh yeah, she messed up this landing...And it

sucks, because you, you don't really have to prove yourself, but it is just that competitive aspect, and especially as a girl.

She has experienced negative attitudes in situations away from her university setting while flying as an instructor. She related that in one story here:

I flew into a small town, with my student, Josh. And I went to go get fuel, and they had only talked to him, and he's not even a private pilot. And I was like, okay, so we need fuel, but I had a sweatshirt on, so they didn't see that I was an instructor, and they kept looking at him like he was the instructor. And I was like, I'm the instructor.

And in another situation away from her university setting, she said,

And then, I was flying, me and my best friend Jane, she has a plane, we flew into an airport, and they're like, so, where's the pilot? And we're like, we just flew in, we need some fuel. And that's, I guess, the only like really instances I've had when that, but they were just like, oh, you're a pilot? Then they are just so surprised, like, so you flew here? And we're like, they're like, you flew in this plane? I kinda like, learned about being a woman, as I got into it.

She related a story about their participation in the Women's Air Race Classic. She said that some male students complained the school was financially supporting the girls in a girl-only event, saying the school should not support the race because male pilots were not allowed to participate. She believes that guys get jealous if there is a perception that the girls are getting special treatment. Speaking of negative attitudes and comments she has heard she said,

You know, they just, you just have to have tunnel vision and kinda block it out and not let it affect you. Which is, it is really easy to let it affect you. But you've gotta just build that backbone and let it start rolling off your shoulders, and like I said, with the

commercial [pilot rating], I finally got my confidence, you know. It took me three ratings, to really be like, you know, I'm a pilot, I'm PIC, and I'm gonna fly this plane, 'cause I can. And you have to have confidence and just kinda block it out.

When asked about differentiated instruction, she believes that male instructors talk to male students differently than female students.

I think they might be harder on males. I think they might be, like, I don't really know how to put this, but yeah, sometimes, because like, not harder, but like more, like, just kinda like, they just talk to them as a guy, but they also might treat girls as if, like, not like easier but just like condescending, I guess sometimes. Like they're like, 'Oh, you're a girl, you're not going to get this as easy, so I'm going to have to explain it to you longer', and stuff like that. And like guys, they just feel like they get it, they think guys just like get it easier, so they go into it thinking guys just get it. Just, I don't know, that's the only thing I've really noticed about it.

She also believes that females have to work harder to prove themselves. She said, "I feel like that you kinda have to prove yourself when you go fly, with a guy. And especially with some of the guys that are more cocky, like you have to prove yourself, because they just think you're not going to be as good as them." She thinks that male students believe female students get more breaks and have an easier time on checkrides and getting jobs. She said,

And they think now that more girls are going into aviation and we're getting more opportunities, then they're like, 'Oh wait, are they gonna get all our opportunities? Are they gonna take it all from us?' You know. 'Are they taking all our scholarships because they're a girl?' Like, you know, 'We can't get scholarships, because we're a guy. You're a girl, so you're gonna get it all.' And then they get mad, and they get kinda like jealous

of us, honestly. And it's just like, there's no jealousy, it's just we're actually getting rights, and it's actually becoming kinda equal. And they're like, 'Well, you guys are coming up to us, so we gotta get up here.'

Faye actually came to her school in a non-flying major because she did not know she could become a pilot as a career. When asked about that she said,

It just never occurred to me that I could, 'cause, well, maybe it's kind of, I was actually researching this for a different class. It's a subliminal programming, like you see all the images growing up. And, all of the images depicted of pilots are male. And, they're all, you know, in the cartoons, they're always a male pilot.

Once she switched into the pilot degree, she continued to realize how few females there are. She said, "But, I guess, the further I got into aviation, I realized, wow, I'm the only girl in this classroom. There are 30 other people in here, and I'm the only girl." The small number of females did not ever deter her from doing what she wants to do, fly aircraft professionally. When asked about the environment in the career field, she said: "If I did stop to think that, it never,...And this is at the beginning. If I did stop to think that, it never really would have influenced my decision, 'cause I wouldn't shy away from that. But it did strike me as odd, yes."

She related a story about her male flight instructor who was extra hard on her and then explained the reason to her later.

In my specific situation, that specific conversation, I had with my instructor, I think I was doing a steep turn, maybe? I don't remember the specific maneuver. But, it was lots of turning, and it was just over and over and over. And I was within minimums. But he wanted me to be like within like, he wanted me to be almost perfect. And I was just so frustrated. Finally, I did it right. And he was like, 'Good job.' And then I talked to him

about it later. This was not even, like, immediately afterwards. This was like days later. We talked about it. I was like, why were you so hard on me? Like, what's going on? And he's like, 'Well, you know, you're eventually going to get into a situation where you do achieve something, and someone is going to be, tell you that you only achieved that because you are a minority. That you only got that job because you're a woman and they needed to make a quota. And I want you to be able to prove them wrong.' My instructor saying that has stuck with me. I am glad I had that experience because they were right. It was not long after, I passed my first checkride. I told a few of my classmates, and a male student who had to retake his checkride, told me that I only passed because my examiner never fails the girls. He said that if I was a male I would have failed. I said some nasty things to him, that I'm not going to repeat. I was very mad. And, I ended up walking away 'cause I didn't wanna ruin it... That was actually the very first time someone told me that I only got something because of my gender, because I was a minority. Instances like that are very rare at Falcon, but they do happen. I have never felt that any of the faculty were treating me in an unfair or bias way due to my gender.

When asked if she had any other negative experiences related to being a female pilot, she told the following story.

It's not really hurdles, but maybe snide comments. Gosh. This was a month ago, here at the flight school, not even anyone affiliated with our flight school. It was the flight school next door. I was setting up the Seminole to fly... And a guy was walking by. I don't remember what he was doing out there, but he walked really close to the plane. And, he had said something to me, and he kind of made a joke. He's like, 'You know, if girls were meant to fly, you know, the sky would've been pink,' and kind of laughed and

walked away. He was in his 70s. He was really, he was an older man. And I just kinda paused, and I'm just like, I mean, I've heard that joke before, but I'd never heard it said so, like, in conversation like, he was asking me about the plane and stuff like that, and he kinda just laughed it off. Maybe he meant it as a joke, but I don't know, it's just kinda like, I was like, what century is this? Like, why would you say something like that? He kinda just walked away, 'cause I didn't, ask him why he said that. I think he meant it a joke, but it kinda hurt my feelings. I'm just like, well, that's kind of unfair. But, yeah it was just the comments like that. I get it a lot from the older generation. My grandmother just does not understand what I want to do. She's just like, 'Are you sure you wanna do that?' She's more of the, you know, settle down, have a family kind of mindset. So, other than the instance where that, male student had said that to me, a lot of older generation people will comment things like that. And they're always really small comments, they don't really mean 'em. I guess they do, but they don't see how harming they are to certain people. Actually, now that I think about it, both of my grandmothers are really against this.

Robert, a Hispanic male, said he has not personally experienced anything that would be considered racial. He considers his school community to be a very welcoming community. He does acknowledge that people sometimes tend to make jokes, which they may consider a being harmless and of no consequence, but are in fact racial. He calls it a playful racism. As someone who is Hispanic, his view of race issues is generally related to Black and White race issues. He thinks that Hispanic people would rather not create attention to themselves. He has never had a female instructor or a female student, but when asked he thinks that the instructor-student

relationship may be different between male and female. He is one to believe that female pilots will have preferential hiring over male pilots.

For Harvey, the realization that he was one of only a couple African Americans in his class got him thinking about how his time at the school may be. He related the following:

Well, then I thought maybe...the flight instructors have, because most of those were also White, during my time as well. So, I didn't know if that would affect like, them moving me on or progressing or treating me differently compared to other students, or doing stage checks or anything like that. But, no, they pretty much all treated me the same as anyone else here, so, it didn't really affect me too much.

His time of pondering the realization that he was underrepresented as an African American does not affect his thinking or feelings about his career goals, and he related, "I can't really think of a time or like where I really paid attention to that entirely." When asked if he considered what his situation will be like when he gets to the airlines, perhaps being the only African American, he replied with a laugh,

Yeah, I guess that thought did pass through my mind, 'cause I mean, I guess we're all going for that same end goal and then I'm just gonna be the only one, so I guess that just makes people think back to I guess, that's true with the percentage that you gave me before, that there's a low percentage in the airlines, for African Americans. But, also the thing that I notice is, I felt like we were getting more and more coming into the school, going through the program now compared to when I was here.

Henry said that race has never really played been a factor in his time at his school. He indicates that students not of his ethnicity and not of the collegiate aviation major typically do not acknowledge him. He indicates that it is more of a passiveness.

No not really, just anything you might expect; some other people in my ethnicity will say what's up to me and not to someone else that's not in my ethnicity. So, based, I don't know. Yeah, I couldn't really think of anything but, I don't know, I get along with more of my ethnicity, is the only thing I can think of. Yeah, yeah. Not even in my major program because, if I see someone in my major program who lives across the campus. 'Hi Bob.' 'Hey, I'm Tyron.' Not that, but that's it. Mm, yeah. Just going back to the same thing. If someone wouldn't want to hang out with you or you come to a party 'cuz ethnicity. Not really anything big, not 'I'm gonna beat you up because you're black.'

He related one story of a situation in which someone made a racial overture because he is an African American pilot.

Yeah, only time that's ever happened like, I kind of don't even mind like, I landed at a somewhere...and I was talking to someone, I was talking to him on a mic I was like, well you can go first. And stuff and he was like, 'Oh, thank you'. And stuff then we got on the ground, eventually we saw each other, because we both had to get gas...And got out, he got out he was like, 'Oh, and he's black too'. He was like, 'Aw good for you, man'...I was just like, yeah. But that's the only thing I've, that's the only instance where that's ever happened.

Hap commented that he does not see many Blacks in Part 135 air carrier operations. He realizes that he will be one of the few when he gets into the industry. Even though he has a desire to help others get into aviation, he said that race has played no role in his experience in his program. He explained that everyone is pretty much the same in the program because everyone has the same goal to become pilots.

No, not really. Mainly because I don't think that anybody here ever looks at race. It's just kind of like you're a pilot and we're trying to make you a better pilot. That's how I felt that it's always been. Just trying to prepare you for your career, and make sure that you have all the tools and resources to do your career and do it well. So, I think that's pretty much what it is, nothing really against race or anything.

Although he is doing well and fits in well now, Hank said it was difficult when he first started. He had a feeling of being alone in the program because there were not many people of color to relate to. He described his feelings and an instance that one of his friends experienced:

There was a point in time where I felt like the only one there because there's point in times like I say, you go to the airport and everybody in there is just White, and it's difficult sometimes you know. Once in a while, like you do a cross-country somewhere. I had one of my friends. He, this was a couple of years ago, he did his first solo cross-country wherever, I can't remember what airport he went to. But he said, 'I walked out the airplane and everybody was just staring at me because it just felt like it was the first black pilot they've ever seen'. And I'm like, what do you mean? He's just like, 'I don't really, I don't really know how to explain it because it just, it just felt weird you know. We talked to the people on the radio. You know it felt good but then you get out the airplane and like, oh. So, this is the person that was actually flying. I thought it was'. And it's, it's, it's, you know, it's different. It felt really good but at the same time I'm just like okay, well, that was an experience.

He said that the social media site Aviators of Color helps him to not feel so alone in his field and in what he is striving for. Another experience he related about being one of the few is this:

Also, since I've been at Hawk, there, I would say there was a year point where there were no black instructors. And seeing him the first day I walked in. I think, I can't remember how long it's been that he's been here. But I think I want to say close to a month and a half now. So, I walked in and I saw his face and was like oh, okay. Somebody I can relate to. Somebody I can relate to. He makes a difference. You know, he was happy to answer questions about it and he was just like yeah, I totally understand what you're doing man. I totally understand. This is how you know. It's special for us, for people of color. It's harder you know. There's always the obstacles, such as finances, to push the career forward. There's always going to be something.

Research Question Responses

This section provides narrative answers to the study's research questions. The central question for this study is: What does it mean to be an underrepresented student in a collegiate professional pilot degree program? A primary goal of a transcendental phenomenological study is to create a rich and thick description of the lived experience of those who experience the phenomenon with intent to determine the essence of the experience. Following the steps for phenomenological analysis outlined by Moustakas (1994), the researcher develops "a composite description of the meanings and essences of the experience, representing the group as a whole" (p. 121). The answer to the central research question is the composite description of the participants' meanings and essences organized and explained in the five themes. Following the composite description are narrative answers to the study's four sub-questions. The answers to the four sub-questions are explained with reference to the themes that are applicable to each sub-question.

Central question (CQ). What does it mean to be an underrepresented student in a collegiate professional pilot degree program? Analysis of data revealed five themes that help to describe what it means to be an underrepresented student in a collegiate professional pilot degree program. The five themes are related to and have validity in the two theories used for this study.

Theme 1: Interest/passion for flying – filters their identity as an underrepresented student. Development of an interest in flying aircraft for a career may transcend societal norms, stereotypes, perceptions and expectations. In other words, the development of an interest in flying may transcend race and gender in a career that White males have dominantly occupied since the beginning of aviation. Those who develop a passion for flying as a career seek every way to fulfill their dreams and desires, and there is generally no thought by women or racial minorities, who have become steadfast in their pursuit, that they will not be able to do it. Prior to arriving at their collegiate program, most of the study participants did not know or consider that it is a career that is historically and socially typed for a particular group or that they would be underrepresented in their collegiate program and in their career. They may encounter people who believe that women should not be pilots, or they may notice there are not many female or Black pilots in the industry, but in general, the participants did not know how few females or racial minorities are in the field. They also generally did not consider what it would mean to be a female or racial minority professional pilot. They just want to fly. They want to be around aircraft, and they want to experience everything that flying brings – travel, leaving the surface of the earth and experiencing the exhilaration of flight, interacting with other pilots, and seeing the beauty of the world from a different perspective. They do not think it strange that they want to fly aircraft even though others may question their career decision. They just want to fly, and many say they cannot imagine doing anything else.

Harvey, a Black male, saw a young airline pilot in an airport while travelling with his family, and he thought to himself, “Wow, how can someone that young go out and just do something so incredible like flying. Well, if he can do that, then why can’t I? Wow, I wanna do something that incredible.” He loves every aspect of flight, saying, “Oh, it’s, it’s a great feeling. I really love the surge and the adrenaline from being able to pull out onto the runway and go full power and take off and come in to land.” He related the passion as, “I felt like it was a passion that I wanted to go and achieve that, to do what that guy was doing at first, and then as time progressed and I started getting better and understanding more things for aviation, I felt like it, yeah this was what I was set out and born to do.”

Andrew, a Hispanic male became fascinated with learning how aircraft fly. He also wanted to make his family proud of him by becoming the first in his family to achieve a college degree. His passion for flying is so great that he feels no need for a so-called back-up plan, and that is one thing that drives him. He is one to follow his dream with a clear picture, and not be distracted by others. He said, “And if your dream is to become a pilot and you follow that with goals and plans, then you’re gonna accomplish it.”

Bailey, a white female, had some exposure to aviation careers due to her father working in the industry but not as a pilot. She fell in love with flying after taking a flight with a family friend. She developed an attitude that whatever it takes, she is going to get there, because she loves flying that much. Bailey emphasized that she is pursuing flying for a career because she loves to fly. She is in the career for herself because it brings her happiness, and she is not in it for the money. She said, “It’s something that I absolutely love.”

Allison, a white female, discovered the awe of flight during a flight with her mom on an Air Force KC-135 flight. Her interest continued to grow with a flight in a Cessna 172. She said

after that, “it’s just always been I wanted to be a pilot.” Her dream is to be an airline pilot, and she just wants to fly. She said, “I fell in love with it. I go three days without flying and I’m like, I need to get in an airplane. Just, it’s what I love to do. I couldn’t imagine doing anything else.” When asked about where she finds joy and comfort in a stressful environment, she said, “Getting in an airplane definitely helps.” She never had a big thought about her being a girl in a male dominated career field.

Hap, a Black male, said he loves aviation, and even though he has trouble explaining what he loves about aviation, he has no trouble describing how it makes him feel.

It’s just it’s everything about it to love about it. It’s like all your problems are gone.

Everything that seems so huge while you’re here, you’re at 5000 ft, you look down, it’s like oh, small thing. That’s not my problem now. This is, this is pretty good. There is never a day where I stepped into a plane and even though the flight, even though let’s say it was a stage check and I missed. Let’s say I, even if I failed that stage check, it’s still a happy flight to me because I learned something new, you know.

Theme 2: Relational thinking/drive verses rational thinking/drive – aspirations. Seel (2018, p. 4) said, “The most powerful frames are those that shape our identity.” Peoples’ social imaginaries construct frames that can drive behaviors, which may in some cases be rational, and in some cases relational or emotional (Seel, 2018). Seel defined social imaginaries as being “poor unthinking assumptions about the nature of the good life embedded in our commercial brands and sense of self” (p. 5). For many of the study participants, there was not a clear vision of what their path to becoming a professional pilot would be or what it would take to achieve their desires for a pilot career, and most of them had very limited or no flight experience prior to beginning their collegiate aviation journey. Their drive and motivation for the career was simply

a fascination and love for flying, which appears to transcend perceived and real barriers. Along the way, they learned to rely on relational support from family, school faculty and staff, and from friends in the program to navigate the challenges and the emotional lows and highs of learning to fly professionally and pursuing the career.

Learning to fly and earning all the required ratings for a pilot career is a challenging endeavor for anyone. There is much knowledge to learn, and there are many complex skills to master. Many students run into self-confidence problems and they may tend to lose motivation because the goal is seemingly distant and unachievable. Students of flight rely on others for support. They rely on family members, and they rely on social relationships, primarily their peers who are also learning to fly and who experience the same struggles and challenges. Students of professional flight, due to their passion and desire to fly, don't always employ rational thinking in their studies especially in the beginning. Even though flying and aeronautical decision making requires a rational approach, students of professional flight often think more relationally. Perhaps relational thinking helps them deal with the stress involved with the numerous exams, oral and practical evaluations, financial challenges, and various other barriers to achieving their goals.

Many new students of aviation do not realize the extent of academic work needed to learn the required knowledge and to master the skills to earn professional pilot certifications. Unlike other professions such as doctor and lawyer, flying is an endeavor that many people pursue as a hobby, and even pilots promote the activity as something anyone can learn to do. Students in a collegiate program face multiple challenges including management of their college course load, financial challenges of paying for everything including tuition and flight training, and the stresses of achieving the knowledge, skills and proficiency required to pass FAA certification

evaluations. As students achieve each rating, they become more confident in their abilities. A student may view each pilot certification earned as being one step closer to achieving the dream of becoming a professional pilot and entering their dream career. It's turning dreams into reality.

People in the lives of the student of collegiate flight include flight instructors, other aviation students, friends, faculty and school support staff members, and family members. Self-confidence can be key to success. Sources of confidence can include those people who help along the way, and the accomplishment of key milestones such as FAA certifications. If a student struggles in training, self-confidence may be weakened to the point of giving up the entire dream and questioning the career decision. All of the participants appeared to be so focused on their desire to become a professional pilot, that they don't put much notice or thought into the fact that they are underrepresented in a White male dominated field.

Student aviators support each other and learn from each other, and isolation can lead to failure. Fellow students of like gender or race characteristics understand struggles and situations that may be the result of their gender or race. Females who only think rationally may listen to those who say that girls should not become pilots. Many of the female participants heard those words from older family members, from teachers, and indirectly from others who expressed surprise that the girl is the pilot. Racial minorities who only think rationally may see that flying is not something that people of color do. For the study participants, the dream of becoming a pilot was so strong that they followed their own heart and not the voice of others.

Andrew is a Hispanic male and a senior who is in his third year in his collegiate aviation program. Like many professional pilot students, Andrew experienced many struggles as he worked to obtain his pilot ratings, completed his college course load, and worked a wage-earning job to pay for it all. At an early point in his training, he sold his car to pay for flight training.

The lack of funds caused his training time to be significantly extended. Once he achieved his private pilot license however, he had completed a very rewarding goal. About this, he said, “Well, it’s real. Like I’m pilot.” He also said, “And, it was like amazing accomplishment for me to be able to know that a goal and a dream that I had and started, it’s now a reality that I had.”

Bailey, a white female, claimed that you really learn something about yourself, what your strengths are, what your weaknesses are, and what kind of motivation and drive you have. She said she is fortunate to have a flight instructor, who is also a female, she relates to and that she can communicate with openly, and that relationship has been a key to her success. Bailey had no prior knowledge of the pilot career prior to coming into the program, and said that her confidence in the beginning was about medium, claiming she was a little intimidated by those who had more experience. She recognized right away that she had a lot of work ahead of her. A significant source of motivation and joy comes from her friends.

Caleb, a Black male, knows he is not the first black male to become a pilot, but he still feels the need to succeed and perhaps be a role model for other African Americans. He said, “Well, pursuing a degree is not easy. I mean, it’s not hard, but it takes dedication. You have to study a lot. But, it’s worth it in the end. That’s what I say. It’s all worth it in the end. If you put, if you’re dedicated, and you want to do the work, it’s worth it.” He did not expect the program to be as challenging as it was. He had just completed a successful stint in the Army, and he has a lot of confidence in himself, but he quickly learned that a flight program is not as easy as it may sound. Relating his experience and awakening to the realities of the challenges, he said, “Mike Tyson says everybody has a plan until you get punched in the face.” He has a motivation to complete the program and to do well, to achieve something significant. He has a motivation to show other Blacks that it can be done. He has learned to discipline himself to be

dedicated to the rigors of the program, and he has a lot of self-belief that he can accomplish his goals. He had trouble with his first flight instructor, which lowered his confidence and even his desire to fly. He recognized his flight instructor as an obstacle, but he said “how I choose to react to them is what will determine where I go. It’s not about you; your attitude determines your altitude.” He went with a new instructor and things changed for the better. His personal drive kept him going.

Emily, a white female, believes that more women are getting into the pilot career, and that more and more will come, and that motivates her. She didn’t think about being one of a small number of females very much until she arrived to campus. She said there’s only five girls in her entire dorm building. As time went on, she realized more and more how few women are in aviation, and she became more motivated to succeed and to help with that issue. She had a good first year and that helped her confidence. As a female she said she doesn’t feel like she has to try any harder to prove herself. She said she just does her thing, to be as successful as she can for herself. Her sources of positive outcome expectations are her motivation to get to her career and her family that supports her.

Allison, a White female, derives her motivation and drive from her goal to have a career as a pilot. She expressed a motivation to work harder because she is a girl and she doesn’t want anyone to think she had it easier because of that. She is driven by a self-motivation to prove to herself that she can succeed. A professor really changed her outlook and motivation by explaining that her learning and career development would all depend on what she put into it. Positive affirmation from others has been a big help in keeping her confidence high or lifting her back up after difficult periods. She also finds motivation in wanting to be her best at whatever she is doing. She calls herself an extremely competitive person. She has a desire to prove

herself in an airplane, and one of the reasons she works so hard is to refute anyone who says she got where she is because she is a girl.

Fran, a White female, is a very driven and motivated person when she knows what she wants to accomplish, and she said she has high confidence in herself. In her program, she began with good self-efficacy for succeeding in the flight training program, and with each success, her self-efficacy increased. She considers her lack of aviation background in growing up as being a deficit she must fill by hard work and perseverance. She said she is determined and a perfectionist, and she considers failure as something to overcome through hard work and study. Even though she is self-confident, she said she doesn't think she has as much confidence in her aviation training as she would like to have.

Frank, a Black male, is motivated in his education and training because he is learning what he wants to do and is excited to do it. He said he likes the industry because it is open to everyone and accepting of everyone. He said, "Anybody can do it. That's what I like about it. It accepts me. You can do anything. You just gotta apply yourself."

Freda, a White female, said she is a competitive person and she is not going to let any guy get one over on her. Many students do not have a lot of confidence in the beginning, but as they achieve successes, they build confidence. She said, "Because having confidence in when you fly is such a huge thing. Like, when you are nervous or stressed, it affects your flying and you don't even realize it." She also believes girls may tend to exhibit less confidence than boys, especially in the beginning stages.

Faye, a White female, had a very tough year in her programs in which she had some health issues, and she had to take significant time away from her classes and her flight training. This caused her to ask herself, "Is this something I really want to do?" She had already faced

one setback when she found out she could not join the Air Force, and with her delays and battle with health, she considered a non-flying path in aviation. Her school faculty helped her by allowing an extended incomplete in her flight course. Other struggles in the flight training have been similar to those faced by most people. She has a bad flight, which causes her to question her motivation to continue, and then she would wake up the next morning, and her attitude was, “Yeah, this is something I really wanna do.” She feels like her confidence runs in peaks and valleys depending on what is going on in her life, and how her flying is going.

Harvey, a Black male, is a student who took longer than most to complete his private pilot training and certification. He said he had trouble connecting with some of his instructors, and the struggles caused him to consider that aviation was not for him after all. He said he almost left the program after his first semester, but he decided to push through. He said he started the program with a lot of confidence, but once he realized the extent of requirements for exams and studying and preparation, he lost some of that confidence in himself. He said that the program becomes easier after achieving the private pilot certification milestone. He related that he sought the help of other people to help him through, and his family also gave him encouragement. After each successful checkride, he gained more personal confidence and he felt better about himself as a pilot. He talked about his family being a motivator because he knows he will be the first pilot in his family.

Theme 3: Environment and career supports. A young person may develop an interest in becoming a pilot, but not all young people who develop the interest actually pursue the career. The majority of the participants developed the interest, and the interest continued through their high school years developing into a desire to pursue the career by means of a college program. Most of them did not know they could achieve their goals through a college program until they

had accomplished research or they learned the path from others. It is not necessary to know about aviation or to know someone in aviation to develop a career interest. The interest may be sparked at a young age and then developed through research or through the help and advice of others. Parents and the family environment may be significant factors in negating perceptions about pursuing careers that are still not the norm for females and racial minorities, like aviation. For each of the participants, parents and other family members supported and encouraged their career choice.

Collegiate aviation programs are very open to all people, regardless of gender and race, and the school environments are very welcoming with staff that want everyone to succeed. In general, no one is treated differently. The road to becoming a professional pilot can be difficult, academically and financially. In addition, students may constantly compare themselves to others, and then feel inadequate if they feel they are struggling while others seem to be performing better. Females in the collegiate programs talk about the supports they use in their stressful academic environment. Supports include parents, faculty members, and their social group of friends, primarily other female friends who are also in the aviation program.

Andrew, a Hispanic male, did not have the money to pursue his collegiate aviation education and training, but with the help of others he worked to obtain scholarships. In addition, he had no one to go to for advice on how to achieve his career goals, and he had no role model. His biggest motivation was tied to his two primary goals: getting a college degree and becoming a pilot.

I felt like I was alone in this world just being myself trying to figure out what to do and who to go with. And no one to give me ideas or guide me in the process. And at times, I did feel lost at the beginning of my training, just trying to figure out and find answers to

my questions, but I was fortunate to go to a university and a college program like [this one].

People that have been in or have come into the life of Andrew influenced his career progress and helped him to progress to his goals. He noted that school advisors and counselors and faculty saw potential in him that he perhaps didn't see in himself. He related: "They were there like when questions arise for like school or just daily life things, I will go talk to them and just have a conversation with them in regards to my situation." For him, these people became substitutes for other social supports such as friends who would be empathetic and understanding of the challenges of becoming a professional pilot. Andrew's supports include a supportive family. One of his biggest motivators is his desire for his family to be proud of him. He looks forward to completing his degree and getting a pilot job so his parents can see that their hard work has paid off or somehow, has contributed to my success. He is very family oriented, and his ties to his family makes him want to work hard.

Bailey, a White female, gains support from friends who are also in aviation. They study together, and they lift her up when needed. She has experienced great support in her flight instructor who is also female, and with whom she has developed a very good relationship. Her flight instructor is probably one of her top role models. She also looks up to the chief instructor as someone who is a master and has been in the career for several years. She said, "While there are not a lot of women here, I feel very welcomed." She continued to emphasize the importance she places in her circle of friends who provide great support to her, even saying that she is where she is now because of her social group.

When Emily, a White female, began to look into becoming a pilot, she didn't really know anyone who had obtained a pilot license. She met her sister's boyfriend, an airline pilot, and he

provided advice and support to get her on the way. By talking with him, she realized that she can become a pilot, and that led to looking at schools and picking the school where she is now. Once she expressed a real interest in flying, her father helped her to investigate the career preparation path. It is different from most other career pursuits. With many careers, you can go to college with a declared major in your field of interest and not be as concerned about the path until later. With aviation however, a person needs to get on the right track from the beginning due to the expense involved and the certifications involved and the many different paths to take.

Edward, a Black male, acknowledged the lack of role models for Black pilots. He said that many people probably don't pursue the career because there is no one to look to for a mentor or model, for financial reasons, and simply due to a lack of understanding about the career, viewing it as a dangerous job.

Allison's mom was a big influence on her career decision and her persistence whenever she became discouraged. She grew up around pilots, and friends who are pilots have provided support in the form of career advice and guidance. They also influenced her to obtain a college degree. Faculty members also have provided support in the form of advice and as role models. She also finds supports from the other girls in the program, saying they stick together for each other. She said, "So yeah, I definitely think we stick together just because we're girls." When she had tough times and thought that flying was not what she was supposed to do, her friends and family rallied and supported and reminded her of her dream.

Fran, a White female, received much positive support from family, coworkers, and friends. Social support from friends in the program has been important to her success and reassurance. The girls in the program support each other in addition to other social support of friends and others. She said, "The girls in our program try to stay connected, and kind of like, oh

we're the few and the mighty, we need to remain friends and support each other at all times.”

Her college environment is supportive also, including availability for financial support.

Freda, a White female, said her father was one to never gender stereotype when she was growing up, telling her that she can do anything she wants to do. When asked where she gets her joy and comfort, she said, “Honestly I guess it would just be peer support. You know, I’m with 30 other people that are going through the exact thing there, in the same mindset as me, they’re going through the exact same thing I’m going through.”

Harvey’s experience at his school has been enjoyable and supportive. He said his program has a family atmosphere, and everyone helps each other and motivates each other to succeed in their common goals. African Americans will tend to hang with other African Americans and with other students as well, whereas the converse may not be the case. He said he collaborates with the other African Americans in the program, but also with others in the program to help each other with the stress. Whenever he was stressed in the program, he said he would go to one or a couple of the African American guys that were a year ahead of him, and they would help him to talk through the issues and to motivate him. He said he sees them in a place he could get to someday. Although they are African American, he said the common race was not what made him more likely to go to them, but that he felt more comfortable with them as persons to talk with.

Hank, a Black male, sees himself as one who does not have the resources that other students may have, and the perceived disparity almost made him quit the program. He enjoys being at his school because everyone supports and helps everyone. He said other people are the key to success, and he explained that people in aviation learn from each other. He may believe that people of color in general may not have the resources that others have to go through an

aviation training program. He feels that the lack of resources puts him at a disadvantage, which means he must work harder to achieve his goals. Early in his training, he said that disparities in resources that students have made him want to stop trying because he felt he was working very hard and not making progress. Like others, he said that it's the people around him that keep him going and persevering. Others that are ahead of him help him to see where he can be as long as he keeps striving. It becomes a shared experience that people learn from and relate to.

Theme 4: Initial realization and reactions to being an underrepresented student.

Underrepresented aviation students may not know or consider they will be underrepresented in their collegiate aviation program, and they may be surprised to learn they will be one of a small number of females or racial minorities. They may have some prior thoughts that they will be in the minority in the industry, but they may not put much thought to what that means. Many are not aware of the history of female and racial minority discrimination in the aviation industry. When they learn that they are in a group of a few females or racial minorities, many enjoy the status and they develop a desire to be successful representatives for others who may want to pursue the career. They work hard to achieve their goals, for themselves, and sometimes to change negative perceptions about females and racial minorities in aviation.

Emily, a White female, likes her status of being in the minority group of females in aviation. She thinks it is great that she will be one of the few female pilots in the industry. In the beginning of her developing interest in aviation, she didn't think about it much that she would be one of a small number of women, but when she arrived at her school, she more fully realized that there really are a small number of girls, and said, "I think it's cool to be one of the few." She has not experienced any negative reactions or comments, but she knows that other people do take

notice that there is just a small number of girls where she is. She believes that most people just don't understand that women can be pilots just as well as men.

Edward, a Black male, claimed he had never thought about the fact that he will be one of the underrepresented Black male airline pilots. He is the first pilot in his family, and he said he is simply focused on getting there. He finds pleasure in doing well and being a positive influence to others.

Allison, a White female, has always been aware that she will be one of the few women, but did not really consider what it means to be underrepresented. She likes to see everyone as being the same, just doing what they are supposed to do.

Fran, a White female, knew going in that she would be one of a small number of girls, but as with others, the reality doesn't hit her completely until she was in her first classes and realized she was one of only two, one, or no other girls. She related, "So that was another thing where I was like, wow, there are not many girls in this program. I mean, yeah, that happens in most of my classes. I think the most females I've ever had is like three in a classroom, but that doesn't make me feel underrepresented. The bathrooms are always cleaner. We always have toilet paper and paper towels because it's not always being used."

Frank, a Black male, knows he does not see many African American pilots at airports, but he said he did not think about it much. He said he was just a kid who wanted to become a pilot, and his race played no factor in thinking about the career and what it would be like. Once he arrived at his school, he realized that, yes, he is one of a few Black males in the program. He said, "...when I got to school, and I'm in class, and I turn around, and I'm like, "Hey I'm the only African American kid here. Like in my class now, in my Pro Three class, which is the commercial [pilot] class, I think I'm the only one out of like at least 30 to 40 kids." He said he is

not aware of the problems that women and African Americans had in aviation in the past. Since coming to his school, he has realized that people notice him, and that drives him to want to do well.

Growing up and becoming interested in flying, Freda, a White female, did not realize the extent of the small number of female pilots. She said, "I just grew up around like, it never really occurred to me that there was a gap. Until I came here, and I was like, wow, there's like no women here." She believes that girls may have to work harder to prove themselves because of perceived attitudes that her male peers have. Comments she has heard have been on the order of: "Oh girls can't drive, they can definitely not fly," and, "Oh blond little girl, like, there's no way you can be as good a pilot as me."

Faye, a White female, first became very aware that she was one of a small few females in the collegiate program in one of her first professional pilot classes. Although the class was taught by a female faculty member, Faye was the only female student. About her status as one of the few, she said, "So, I always thought that was really cool." Knowing there would not be many other females in her program, she said in the beginning, she was always on the lookout for the other females so she would have some female friends in the program. The small number of females did not deter her from doing what she wants to do, fly aircraft professionally. When asked about the environment in the career field, she said: "If I did stop to think that, it never,...and this is at the beginning. If I did stop to think that, it never really would have influenced my decision, 'cause I wouldn't shy away from that. But it did strike me as odd, yes."

When Harvey, a Black male, was considering and planning to become a professional pilot he did not consider that he would be one of a very small number of black pilots in the industry. When asked if he knew he would be underrepresented, he said, "At first, no. It didn't

really hit me until my first day here.” When asked if he knew the demographics, he answered, “No. I didn’t, I never really considered it. But then like got into my class and there was only one or two other African Americans, I just said, wow. There’s not too many of us compared to like 18 other kids.” When asked what he thought about that, he said, “It felt, it felt a little off at first, it just took a little bit of getting used to.” Now, he wants to be a role model for others, as he said, “whether it be the flight instructor to where they can like look up to me, whether it’s the new class coming in or one of the African Americans underneath me, just look at me and wanna do what I do.” He explained that he has a desire to represent African Americans in his field, saying:

Well I guess I have to represent, and just show that I can do just as well as everyone else. And I would just keep studying my material so I can make sure I give the right answers if I was called on, ‘cause I didn’t wanna look like I’m an underachiever just ‘cause I’m African American.

Hap, a Black male, did not realize or think that he would be underrepresented in his college program. He related how he felt upon realizing that he was in the minority as a black student in his program.

I’m like, well, I really am the only black kid here. Of course, one of my friends was Hispanic and everyone else was white, but it was, it was...it was kind of like well, I got, it was like, well I gotta make it now, not only for me, but for my family and other, and other Black pilots so that they can, like other young children so that they can see that it is possible...

Although he is doing well and fits in well now, Hank, a Black male, said it was difficult when he first started. He had a feeling of being alone in the program because there were not

many people of color to relate to. He said he met his first Black flight instructor after his first or second year, and that pumped him up a bit. Maybe he thought that most black aviation students could not go the distance, but then he found one that was a flight instructor.

Theme 5: Developing behavior responses. Theme five characterizes the social dynamics of how the participants see others reacting with them, how they respond to others, and how their beliefs have changed as a result of being in their program as an underrepresented student. People who are underrepresented in a group notice that they are underrepresented. People who are in the majority group may have different responses to the minority group members. The majority group influences the environment and the conversation in many cases. Many of the participants did not consider they would be underrepresented in their collegiate setting. The females thought about it more than the racial minorities. When thinking about the females in the program, racial minorities males see females as being an underrepresented group and may have their own opinions from a majority male perspective about females in aviation. Many of the participants were very surprised on their first day of classes to discover that they were the only or one of a very small number of their group. The girls tended to band together and develop close relationships pretty quickly. Although they were not uncomfortable being in their underrepresented situation, they did generally comment that it was very noticeable.

Underrepresented students starting out in a collegiate aviation program may not think they will be underrepresented in the industry or that they may face discrimination. Their intent on achieving their goal of becoming a pilot seems to override any thoughts or concerns about their underrepresented status. They are simply focused on doing their best for themselves or for those who are close to them. Once they realize that they are one of few, many of them develop a desire to do well to represent others who are underrepresented. The collegiate aviation programs

are very supportive of everyone regardless of gender or race. Aviation creates a common bond among those who are in aviation as pilots, and most pilots have a desire to see new pilots succeed regardless of gender or race. In addition, efforts to bring more women and racial minorities into aviation help to create a welcoming environment. Students may enter their program with an expectation that there will be discrimination, but generally, they do not experience it. Despite the open and welcoming environment and the common bonds, students generally like hanging out and socializing with others who are like them. Female students are often more comfortable with other female students, and Black students are often more comfortable relating to other Black students. When things get tough, the common aviation experience and the common gender or race experience is what most students rely on for comfort and support. Finally, many underrepresented students may not want to acknowledge they are different or that discrimination may exist. They just want to achieve their goals and dreams, and to be like everyone else. As a result, they may behave one way when they are with the majority group, and another way when they are with those like themselves underrepresented, either female or racial minority.

Andrew, a Hispanic male, doesn't seem to be impacted by being one of a small number of his racial background in his school environment. In his view everyone is just the same. He said he never considered race as being a big issue, and he sees everyone as being equal and the same. He said, "Everybody is equal. And nobody is different than just because of who we are or where we come from. I haven't like seen that on me and I don't believe it." His attitude upon arriving at his university is that "we are equal and we all should be treated the same." He said he has never experienced a time when he felt different than anyone else. He said the campus student population is very diverse, so it has a diverse feel to it where everyone is basically the

same. He said, “You see a lot of White female, White males, but you also just see...a lot of other people from other countries.” He sees commonality in that all are pilots, and there is no difference in anyone due to race or background. He does believe his background may have made it challenging to pursue a career in aviation because he did not know anyone in aviation and had no role models. He had to research, discover and learn everything on his own, and with the help of those at the university once he started there.

Baily, a White female described her campus as being very welcoming to all. She has never had an experience of being discriminated against or belittled for being a female, but she has only been one year in her program. She has never felt the need to prove herself. She did not think about being underrepresented as a female, and her early role models were men. On being a female on the predominantly white male aviation campus, she believes the school is very open for women. She has never experienced a time in which she felt like she could not be a pilot because she is a woman. She also claimed she has never felt isolated, or that she had to prove herself as being capable because she is a female.

Caleb experienced an awkward moment of the type that many underrepresented people experience and that he also described as being humorous.

There was one time (laughs), well, the teacher made kind of a joke. He didn't know.

We were in class, and I was the only, well, there was three of us. There were three Black guys in that class, but some reason, that particular day, I'm the only one who showed up. And, and the teacher was looking for the marker, so he was reaching out for it, and you know how you make a comment, like, you're, you're reaching for something, you're like, oh, Mr. Paper, come here. So, the teacher looked, looked at the, the marker and he's like, oh, Mr. black guy, come here. And everybody turned around and looked

at me, and it was kind of funny at the time, because, like, I'm the only Black guy. So, it was like Mr. black guy, so everybody started smiling and looking back at me. I mean, they wanted to see my reaction. I was, like, oh.

Emily, a White female, said her campus is very welcoming and a good place to be. Everyone around her help her to succeed. On her campus she finds the environment to be very respectful to everyone. She said that all the faculty and instructors treat everyone the same. She seems to have expected on a male dominated campus that she would encounter sexist remarks and behaviors and men looking down on the women students, which is why she found it shocking and said that it isn't that way. She said everyone there makes the women feel better about themselves. She knows that many people do not expect to see women pilots. She related an experience that occurred away from her school campus that annoys her.

I got this tattoo like...a year ago. So, before I even got accepted here I got it. And, I work at a restaurant, and every day after I got it some guy would ask me, just like a different guy would ask if my dad was a pilot. That was the main one. If I got it because my dad was a pilot, and then another one I got was if I was a flight attendant. And, I actually wrote a paper about this first semester. Not one single person asked me if I was a pilot. And then one day there is a guy and he saw it and he asked me and I was like so shocked about it. I was like, did you really just ask me that? And I was like, yeah, I am. And then when I would tell the people that asked, if I told them that I was a pilot, they would act shocked that I would be a pilot. So that was, that was the first...that's really the only thing. I feel like anything I experience like that is outside of this school. I'd get annoyed and irritated that it was just always the same question. That no one just thought to ask if I was a pilot. Just annoyed me.

She has not experienced any issues or discrimination on her campus. She has only had one comment, and that was from a construction worker on campus.

There's some construction workers and I saw the same guy a couple of times whenever I'd go to class or something and one day he stopped me and he's like, 'Are you the only girl on this campus?' And I was like, 'basically'. He's like 'You're the only girl I've seen in the week I've been here.' And I was like, 'yeah', so, other people notice it.

Having experienced many different places and cultures, Edward, a Black male, said he views everyone as being the same to him, just human beings. He said race has not affected his experience at his school. He said he doesn't always get positive interactions with people around the predominantly White community outside the university campus, but that's the only thing that he has encountered regarding race. He has never thought about being a minority in the aviation industry, saying it has never crossed his mind. Becoming a pilot is simply what he wants to do, and that is all that matters. He also acknowledged that he knows there are very few females in the industry, but has never thought about it in terms of race.

Allison, a White female, believes she is in a learning environment in which everyone is treated equally and that there is no difference in capability among genders. To a certain extent she is more comfortable around guys who have similar interests than around girls who do not have the same interests as she does. She seems to want to prove to the guys that she can hang with them, and she deliberately works hard because of that desire. She likes to say that everyone is the same, we're all just people trying to get a job done. She believes that how a person was raised also affects how they view genders and race in some careers. She said she is not going to get upset by people who have prejudices. She works to be just one of the group, but she also knows that the group dynamics can be affected by girls who don't perform, and she

seems concerned by that. The girls in her program are in a girl group that polices each other's behavior for the good of their gender in the program.

Fran, a White female, does not believe girls must work harder to prove themselves. She believes everyone is the same and everyone must work hard to succeed in aviation. If some girls work harder, it is because that is their nature to do so. "Yeah, honestly I'd just give them the advice I give everyone. You gotta work hard. You don't have to work harder 'cause you're a girl, you just have to work hard." She believes there is still discrimination, but that it is offset these days due to more empowerment. She does not feel underrepresented: "Yeah, I don't, I don't feel underrepresented. I understand that I am a minority." People do have their views about females doing certain things, as related in an experience she had with a thesis advisor who didn't think females should fly aircraft in potentially dangerous situations. The girls in aviation generally get very upset when people express views that women should not or cannot become pilots, but they generally know that it is from ignorance.

Frank, a Black male, seems to have expected some discrimination in his school, but he has not experienced any. He still expects he may encounter discrimination in the industry but said it won't bother him or prevent him from achieving his goals. He believes that more minorities do not go into aviation because of fear of being in a minority group, or fear that becoming a pilot is too difficult. He also believes he has to work harder than others, but because others may have had more opportunities in aviation prior to coming to school. There may be a perception among some racial minorities that white students have access to better resources such as parents who own aircraft. He said he looks forward to being an African American pilot walking through an airport.

So, I just look forward to the industry and knowing that I could be walking through the airport and people are looking like hey that's an African American pilot there. So just that attention, me, whether it's negative or positive, I'm gonna take it positive, 'cause I like it to. That's fine with me.

When Freda was in high school, teachers told her that the military is not really for girls, and flying is not really for girls. She identifies with her mom in being a strong-willed woman, and she identifies with her father and grandfather, who are pilots, all of which had more of an influence on her than her teachers in high school. She said she has flown into airports, and people there were surprised to learn that she was the pilot. She also believes that females have to work harder to prove themselves. She also said, "I feel like that you kinda have to prove yourself when you go fly, with a guy. And especially with some of the guys that are more cocky, like you have to prove yourself, because they just think you're not going to be as good as them." She thinks that male students believe female students get more breaks and have an easier time on checkrides and getting jobs.

Most of the female participants said that they did not have to work harder to prove themselves as a female or that they were treated differently, but Faye, a White female student, related an experience with her male flight instructor that stuck with her through the rest of her training. The experience occurred when she was a second semester sophomore.

Falcon, as a whole, is a good school, but I do think there is a difference between how women pilots are treated, and how male pilots are treated. I will never forget my first bad flight. My instructor was being very hard on me. He made me do a maneuver over and over until I got it right. The wind was really strong, and I kept getting it wrong. Finally, after a straight hour of doing the same maneuver, I was able to do it perfectly. My

instructor told me that's how they expected me to do it every time. I asked why it had to be perfect because I was within minimums a bunch of times before it. He responded, 'One day you will get a job, and you are going to run into people that felt that you only got the job because you are a female. Not because you actually deserved it. I want you to prove them wrong. Because you are a female, I will be harder on you than my male students.' My instructor saying that has stuck with me. I am glad I had that experience because they were right. It was not long after, I passed my first checkride. I told a few of my classmates, and a male student who had to retake his checkride, told me that I only passed because my examiner never fails the girls. He said that if I was a male I would have failed. I said some nasty things to him, that I'm not going to repeat. I was very mad. And, I ended up walking away 'cause I didn't wanna ruin it.

She also related a story that demonstrates how some people react to seeing females as pilots.

This was a month ago, here at the flight school, not even anyone affiliated with our flight school. It was the flight school next door. I was setting up the Seminole to fly. And a guy was walking by. I don't remember what he was doing out there, but he walked really close to the plane. And, he had said something to me, and he kind of made a joke. He's like, 'You know, if girls were meant to fly, you know, the sky would've been pink', and kind of laughed and walked away. He was in his 70s. He was really, he was an older man. And I just kinda paused, and I'm just like, I mean, I've heard that joke before, but I'd never heard it said so, like, in conversation like, he was asking me about the plane and stuff like that, and he kinda just laughed it off. Maybe he meant it as a joke, but I don't know, it's just kinda like, I was like, what century is this? Like, why would you say

something like that? He kinda just walked away, 'cause I didn't, ask him why he said that. I think he meant it a joke, but it kinda hurt my feelings. I'm just like, well, that's kind of unfair. But, yeah it was just the comments like that. I get it a lot from the older generation. My grandmother just does not understand what I want to do. She's just like, 'Are you sure you wanna do that?' She's more of the, you know, settle down, have a family kind of mindset.

Faye believes that many girls are just not aware of the possibility of becoming a pilot. She told of a Facebook group just for female pilots to share experiences and stories. She said that many of the stories talk about encounters with young girls who are made to believe that girls cannot become pilots. She believes that the younger generation, her generation, is more open to diversity, mostly because that is the world they have grown up in. When their parents were growing up, they were not exposed to females being pilots.

Robert, a Hispanic male, said he has not personally experienced anything that would be considered racial. He considers his school to be a very welcoming community. He acknowledged that people sometimes tend to make jokes, which they may consider being harmless and of no consequence, but are in fact racial. He called it a playful racism. As someone who is Hispanic, his view of race issues is generally related to Black and White race issues. He thinks that Hispanic people would rather not create attention to themselves. He has never had a female instructor or a female student, but when asked he thinks that the instructor-student relationship may be different between male and female. He is one to believe that female pilots will have preferential hiring over male pilots.

Harvey, a Black male, said he feels like other people might believe he would not be able to achieve as much because of his race or background, saying,

I do feel like that, even though because I don't really know from personal experience, but I've seen it throughout high school to where like if they had like a poor like background, like family issues, or just money issues or anything of that sort, that they tend to not do as well in school, so I mean, I don't want my instructors or teachers to look at me that way. So, I wanna show that I can actually get out there and do what I have to do.

Henry, a Black male, said race has never really played been a factor in his time at his school. He indicated that students not of his ethnicity and not in the collegiate aviation major typically do not acknowledge him. He indicated that it is more of a passiveness. He said,

No not really, just anything you might expect; some other people in my ethnicity will say what's up to me and not to someone else that's not in my ethnicity. So, based, I don't know. Like, yeah, I couldn't really think of anything but, I don't know, I get along with more of my ethnicity, is the only thing I can think of. Not even in my major program because, if I see someone in my major program who lives across the campus, 'Hi Bob', 'Hey, I'm Tyron'...If someone wouldn't want to hang out with you or you come to a party 'cuz ethnicity. Not really anything big, not 'I'm gonna beat you up because you're Black'.

Like others, most of his race-related experiences have occurred outside his school program. He related one story of a situation in which someone made a racial overture because he is an African American pilot, saying,

Yeah, the only time that's ever happened like, I kind of don't even mind like, I landed at a somewhere I think it was like Hilton Head and I was talking to someone, I was talking to him on a mic I was like, well you can go first. And stuff and he was like, 'Oh, thank you'. And stuff then we got on the ground, eventually we saw each other, because we

both had to get gas...And he got out he was like 'Oh, and he's black too'. He was like, 'Aw good for you, man'...But that's the only thing I've, that's the only instance where that's ever happened.

Hap, a Black male, has a desire to help others get into aviation. He said race has played no role in his experience in his program. He explained that everyone is pretty much the same in the program because everyone has the same goal to become pilots.

Mainly because I don't think that anybody here ever looks at race. It's just kind of like you're a pilot and we're trying to make you a better pilot. That's how I felt that it's always been. Just trying to prepare you for your career, and make sure that you have all the tools and resources to do your career and do it well. So, I think that's pretty much what it is, nothing really against race or anything.

Although he is doing well and fits in now, Hank, a Black male, said it was difficult when he first started. He had a feeling of being alone in the program because there were not many people of color to relate to. He describes his feelings and an instance that one of his friends experienced.

There was a point in time where I felt like the only one there because there's point in times like I say, you go to the airport and everybody in there is just White, and it's difficult sometimes you know. Once in a while, like you do a cross-country somewhere. I had one of my friends. He, this was a couple of years ago, he did his first solo cross-country wherever, I can't remember what airport he went to. But he said, 'I walked out the airplane and everybody was just staring at me because it just felt like it was the first Black pilot they've ever seen'. And I'm like, what do you mean? He's just like, 'I don't really, I don't really know how to explain it because it just, it just felt weird you know'.

We talked to the people on the radio. You know it felt good but then you get out the airplane and like, oh. So, this is the person that was actually flying. I thought it was. And it's, it's, it's, you know, it's different. It felt really good but at the same time I'm just like okay, well, that was an experience.

Sub-Question 1 (SQ1). What influence do cognitive-person attributes have on meaning that is experienced and described by the underrepresented aviation student? Gender and race characteristics in themselves are not the sole influencers of a career preparing education experience. According to SCCT, cognitive-person attributes also have an influence. The psychological and social aspects of gender and race within a society may affect access to opportunities as well as self-efficacy beliefs and outcome expectations (Brown & Lent, 2013). Social cognitive theory (SCT), which is the foundation of SCCT, posits that people, behaviors and environments influence each other (Brown & Lent, 2013). The social/cultural influence of gender and race can impact self-efficacy beliefs and outcome expectations positively and negatively depending on the particular academic and career domain and on environmental contexts (Brown & Lent, 2013). In many instances, the person-cognitive effects of gender and race are not readily seen or perceived, as they tend to operate in the background or subconsciously (Brown & Lent, 2013).

Theme 1: Interest/passion for flying – filters their identity as an underrepresented student. This theme addresses the first sub-question in terms of how the cognitive-person attributes affected interest development for a career as a pilot. According to SCCT people are normally able to exercise some amount of agency or self-direction in pursuit of desired outcomes, and that a person's agency can depend on the three cognitive-person variables, which are self-efficacy beliefs, outcome expectations, and personal goals (Brown & Lent, 2013).

Bandura (1986) defines self-efficacy as “people’s judgments of their capabilities to organize and execute courses of action required to attain designated types of performances” (p. 391). For each of the participants, self-efficacy in a pilot or flying domain did not appear to be a factor in their interest development and decision to pursue a pilot career. Almost every participant came into their collegiate aviation program with a belief they would become a professional pilot even though they did not know everything the program would entail. Many of them after taking a flight in a small aircraft confirmed their interest and desire to become a professional pilot. The only participant that did not enter her collegiate program intending to become a pilot did so later when a professor, detecting that she appeared more interested in flying aircraft than in designing aircraft, advised her that such a track was possible. Many of the participants struggled early in their program, particularly in the private pilot training, but they persevered because of the strength of their goal of achieving their dream. One participant who struggled early in his program said he knew he would achieve his goal of becoming a pilot even if he could not complete it through his collegiate program. He said, “I didn’t think I would be at Hawk doing it after like, not doing as well, but I always knew I would get it done somewhere.”

A key determinant of goal attainment is the passion for flying that almost all participants expressed. In some ways, perhaps, passion transcends self-efficacy. Most of the participants did not know that the program would be hard work, so self-efficacy may not have been a factor in the beginning. They simply saw the excitement or thrill of flying, and did not realize that learning to fly and studying to become a professional pilot requires tireless dedication and drive. According to SCCT, interest in a particular career pursuit can occur if the person can anticipate a desired outcome expectation (Brown & Lent, 2013). Thirteen of the participants expressed that an early experience sparked an interest in flying. In many cases, a later experience of a first

flight in a small aircraft developed the interest into a love and a strong desire to pursue a career as a pilot. Thirteen of the participants expressed in one manner or another that their early pursuit of the career in their collegiate program transformed their interest and love for flying into a passion. Six of the participants said the program is challenging, stressful and hard work, so you have to love it to do it. Nine of the participants said they cannot see themselves doing anything else.

Theme 2: Relational thinking/drive verses rational thinking/drive – aspirations. This theme addresses the first sub-question in terms of how the participants decided to pursue a career in which they would be underrepresented and in which they had little knowledge. The theme addresses a motivation and drive to become a pilot that appears to be derived from relational social imaginaries formed as a picture of the participants' futures. The theme exposes a potential for transcending normal cognitive-person effects on career interest development. People acquire and then modify their self-beliefs about their personal capabilities through four primary sources: 1) personal performance accomplishments, 2) vicarious learning, 3) social persuasion, and 4) physiological and affective states (Bandura, 1986).

Most of the students started their program with no previous experience in flying in an aircraft other than one flight, yet all of them held a belief that they would be able to accomplish their goal of becoming a professional pilot. Thirteen of the participants said that they struggled in the beginning because they were not prepared for the rigors and demands of the program or they found it difficult to achieve the required knowledge and skill levels to achieve certification as a pilot. Seven of the participants said that their early struggles caused them to question their career choice. Most of the participants stated that their confidence in their ability to complete their program increased with the attainment of each pilot certification. As they continued

through their programs, they gained more confidence and motivation for their outcome expectations and goals. In this manner, what started as relational thinking and drive became rational thinking and drive as they became more aligned with what it means to become a professional pilot.

The personal goals aspect of the cognitive-person element of SCCT addresses the question, “How much and how well do I want to do this?” (Brown & Lent, 2013, p. 119). In the career choice of pilot, personal goals consist of choice-content goals, or the activity of being a pilot, and performance goals, or the quality of performance while working to achieve the desired career (Brown & Lent, 2013). As people achieve their goals with good performance, self-efficacy and outcome expectation increase. Andrew related his struggles with instrument training:

Once I figured instruments...And then I did my first like actual instrument flight, it's just rewarding like...knowing that feeling that I got...When I flew under the clouds or in the clouds...it was amazing. I gained more confidence in myself as a pilot and as a person. Just being able to critically develop those skills that I couldn't at some point.

Edward is a student who struggled to complete his private pilot training. He said, “I feel like my confidence would just grow after I finished the check ride, to get my private or get my instrument rating, and then I felt like my confidence would just steadily like incline from there. I gotta say it's a, it's a really good feeling.” Vicarious learning through observing the actions of others may influence the observer to behave in a similar manner (Bandura, 1986). Vicarious learning occurs fairly frequently and significantly in aviation training programs. Students see first-hand what others have achieved and they are able to see themselves in the same place one day. Typically, their flight instructors are fellow students or recent graduates who were in the

same place not that long ago, and they can become somewhat of a role model. At the end of his collegiate program, Harvey has a desire to be a role model for new students coming into the program.

Well I guess the only thing is that, just like my hope that since I'm here at the end of the program, then maybe I can go out and be that role model for somebody else, to go to that distance, whether it be the flight instructor to where they can like look up to me, whether it's the new class coming in or one of the African Americans underneath me, just look at me and wanna do what I do.

Social persuasion plays a significant role in learning through relationships that aviation students have among themselves. Nine of the participants stated that they placed a strong reliance on their social circle of aviation students, and twelve of the participants related that one of their biggest support mechanisms in their program comes from their peer group, particularly those who are also in the aviation program and are also underrepresented as females or racial minorities. Bailey related, "...and those days when I'm just really stressed and get down on myself and I'm like, ugh, I don't know if I can do this, it's those friends that back me up because they're in the same boat and they know how, why we're all here. I mean, we're all here for the same thing: we love this so much. So yeah, if it's not just my sheer motivation and love for this, then it's those friends".

Most of the participants spoke of dealing with stress that may manifest in their affective states. For most of them, it is their strong desire to achieve their career goal of becoming a professional pilot that regulated their emotions about the rigors of the program. Bailey said, "I would say my confidence is in the middle because I had no prior knowledge of aviation coming

into this, but, I loved flying so much that I know...I knew that, whatever it took, I was gonna get there.”

Environmental conditions and supports affect personal agency also. Supportive flight instructors, faculty, peers, parents, and others play a role in all of the participants self-beliefs and confidence in their ability to complete their program. All fifteen participants spoke of support from multiple sources, and primarily from parents, peers and instructional or school support staff. Nine of the participants described their school as having a welcoming environment that wants to see them succeed. All fifteen participants spoke of positive support from their parents. Many of them described their flight instructor as being key to their success. About her flight instructor, Bailey said the following: “So, I owe it all to her. I mean, she taught me how to fly, too, so she's definitely stood out to me.”

Sub-Question 2 (SQ2): What influence do personal characteristics of gender and race have on meaning that is experienced and described by the underrepresented aviation student? SCCT does not have the view that gender and race characteristics in themselves influence education and career performance and satisfaction, but that the psychological and social aspects of gender and race within a society may affect access to opportunities as well as self-efficacy beliefs and outcome expectations (Brown & Lent, 2013). Social cognitive theory (SCT), which is the foundation of SCCT, posits that people, behaviors and environments influence each other (Brown & Lent, 2013). Many empirical studies have investigated the influence that personal characteristics of gender and race have on education and career performance and development. The social/cultural influence of gender and race can impact self-efficacy beliefs and outcome expectations positively and negatively depending on the particular academic and career domain and on environmental contexts (Brown & Lent, 2013). In many instances, the social-cognitive

effects of gender and race are not readily seen or perceived, as they tend to operate in the background or subconsciously (Brown & Lent, 2013).

Theme 1: Interest/passion for flying – filters their identity as an underrepresented student. The first theme addresses this sub-question in terms of how the participants developed an interest for flight even though they would be an underrepresented person in the career by gender or race. Each of the three elements of SCCT – cognitive-person, personal characteristics, and environment – interact in various contexts to develop career interests (Brown. & Lent, 2013). Personal characteristics of gender and race may be affected by environmental contexts including family background, culture, socioeconomic conditions, and other factors (Brown & Lent, 2013). The concerns of gender and race in the SCCT context are in reference to the psychological and social effects rather than the physical or biological factors. Some people may have the appropriate level of domain-specific self-efficacy for a particular career, but they lack the outcome expectation due to a misperception that only certain people go into those careers (Brown & Lent, 2013). In other words, males may not consider a female-typed career such as nursing and other helping careers, and females may not consider a male-typed career such as a STEM career (Brown & Lent, 2013). Each of the participants developed an interest in a pilot career without regard to their gender or race. In no case, was there an indication that gender or race affected the participants' interest development or decision to pursue a career as a pilot or inhibited them in any way.

Bandura (1986), in his Social Cognitive Theory (SCT) explained that “generally, girls view themselves as less efficacious than boys at intellectual activities that have been stereotypically linked with males” (p. 420). Females who pursue nontraditional careers must possess a high degree of self-efficacy and must believe strongly in themselves, particularly if the

career is male-dominated (Bandura, 1986). Three of the six female participants expressed their belief that girls have less confidence than boys and that they think things through more. In all cases, it appears that the desire and passion to become a professional pilot, to fly aircraft, overrode any perceived lack of confidence in mastering the required knowledge and skills. Fran describes her confidence in achieving her goals:

Well I definitely have a ton of confidence in myself. I consider myself to be very intelligent, so I think that I don't have any problem getting through the program, but I do know that there are some areas that I'm lacking in flying education. It's not that I can't do it, but I'm just a little behind everyone else. And one of those areas that has always stuck out to me, is a lot of my male friends have always had more experience with car engines, and so it's been a lot easier for them to understand airplane engines. While me and all of my female friends, we struggle a little more in the engine area. So that's not, I mean, it's not that my confidence is lacking in that area, but it's that I'm just behind.

Another female student, Allison describes her confidence in achieving her goals:

Yeah, so after I got my private, I wasn't very confident. The people saying that the private is just the license to learn is so true. If I'd have gone and rented an airplane, like some people get their private and then they go rent the plane and fly their family around. I was not going to do that, 'cause my confidence was still small. Because like I said I'm a perfectionist, so I was like, I still only have like 60 flight hours. I don't know what I'm doing. Once I did my instrument training and passed my instrument check ride, that's when my confidence really started to build and it keeps building with every flight lab that I complete, with every student I complete now. I still don't think I have as much confidence as other people, and I've heard that that's just a thing with girls. We don't

have as much as confidence, we need more reassurance as pilots, and I get that reassurance by practicing extra landings, practicing talking to ATC more is how I build that extra confidence that...and I believe that girls, most girls need a little bit of reassurance.

Bandura (1986) in SCT also instructed that the different inherent confidence levels seen in girls “stem from a combination of developmental influences, each of which fosters underestimation of the capabilities of girls. The first concerns the pervasive cultural modeling of sex-role stereotypes. Girls who adopt the stereotypic conception will mistrust their proficiency on achievement tasks” (p. 420)

Theme 4: Initial realization and reactions to being an underrepresented student. The fourth theme addresses this sub-question in terms of how the participants saw themselves in their gender or race when they arrived at and started their collegiate program. Twelve of the participants related that they did not know or consider that they would be one of a small number of female or racial minority members in their program, nor did they consider the numbers of females and racial minority members in the pilot industry. Nine of the participants expressed that they were surprised on the first day of classes in their programs when they saw and realized that they were the only or one of a few females or racial minorities in their class. Harvey described his first day: “I never really considered it. But then like got into my class and there was only one or two other African Americans, I just said, wow. There's not too many of us compared to like eighteen other kids.” Henry’s first day was similar: “I don’t know, I guess when I went in our first ground school and I saw it was me, and two other guys. I looked around I was like hmm. I see me and a Hispanic, I’m like, hmm, looking good. I like it.” Faye developed a love for flying after a flight in a small airplane with her father at age twelve. She

entered her aviation program in a non-flying aviation technology degree. When asked why she did not start out in a pilot program, she said, “It just never occurred to me that I could, ‘cause, well, maybe...I was actually researching this for a different class...it’s a subliminal programming, like you see all the images growing up. And, all of the images depicted of pilots are male.”

Theme 5: Developing behavior responses. The fifth theme addresses this sub-question in terms of the participants’ experience while in their program as an underrepresented student. The scope of the experiences extends outside the environment of the collegiate campus by including other situations faced by the participants and how they responded to those situations. Although the participants immediately became aware of their minority status when they started their program, their majority view is that they are not treated differently than anyone else. When asked if he believes he is treated differently, Hap related:

No, not really. Mainly because I don’t think that anybody here ever looks at race. It’s just kind of like you’re a pilot and we’re trying to make you a better pilot. That’s how I felt that it’s always been. Just trying to prepare you for your career, and make sure that you have all the tools and resources to, to, um, do your career and do it well. So, I think that’s pretty much what it is, nothing really against race or anything.

Sub-Question 3 (SQ3). What influence does the contextual environment have on meaning that is experienced and described by the underrepresented aviation student? The environment covers many contextual aspects of educational and career performance and development, which can influence the overall personal experience. SCCT makes the point that “people do not choose careers unilaterally; environments also choose people” (Brown & Lent, 2013, p. 123). The environment from an academic and career development perspective can

include family social/cultural aspects and supports, society biases and prejudices, and economic situations (Brown & Lent, 2013). In choosing academic and career pursuits, it may be that people are simply more comfortable interacting with people who look and think alike, and that some environments are not open or friendly to some groups of people (Brown & Lent, 2013). Some people choose career pursuits simply because of the situation they are in, which includes job availability, financial need, or family expectations, although they may not be particularly interested in those pursuits (Brown & Lent, 2013). An assumption in this study is that the participants had the freedom and means to choose to pursue a career as a professional pilot, and they did so even though they know that they would be minorities based on gender and/or race.

Theme 3: Environment and career supports. The third theme addresses this sub-question in terms of how the participants' environment influenced their decision to pursue a pilot career and how the environment and supports shaped their experience. A young person may develop an interest in becoming a pilot, but not all young people who develop the interest actually pursue the career. The majority of the participants developed the interest, and the interest continued through their high school years developing into a desire to pursue the career by means of a college program. Most of them did not know they could achieve their goals through a college program until they had accomplished research or they learned the path from others. Four of the participants who developed an interest at a very young age let the interest lie dormant for a few years, and then rekindled the interest later. For example, Robert had an early interest in aviation, but he pursued a different career before coming back to his original interest in flying. He said,

But then I just didn't, you know when there's something doesn't feel right, it didn't, I feel like if I was gonna do something, I feel like I enjoyed it. And it just felt like a tedious job

to me that I wasn't meant to do. So, about a year into my culinary degree, I went in to talk to a Navy recruiter and I asked them if I could fly, what would be the requirements, and then I think that's how it started at the age of nineteen.

About half of the participants did not know anyone in aviation prior to pursuing a career as a pilot at their school. They simply knew they wanted to become a pilot, but they did not know how to get there. Only four of the participants came from a family in which a family member is in the aviation career field or is a pilot, and only one of those has a family member who is a professional pilot. Regardless, all fifteen of the participants' parents support their career decision, most of them with enthusiastic support.

Probably the most significant source of support for the participants in their program are their peer groups. Twelve of the participants related that they rely on peers and social groups for emotional and academic support. Nine participants also commented that their schools have a welcoming environment and everyone is treated equally and fairly, and eleven related that students are not treated differently because of their status as a female or racial minority. Six of the participants described their school program as having a family atmosphere.

Sub-Question 4 (SQ4). What meaning does the underrepresented aviation student ascribe to his or her experience in terms of social justice and equality as it relates to their academic and career development? The second theoretical framework guiding this study is critical theory (CT), which also has a social justice goal of understanding and shaping how underprivileged and oppressed groups achieve self-determination and equality in academic and career pursuits. This sub-question from a CT point of view is to investigate how the participants view their academic and career development within the context of an industry historically and culturally dominated by white males. A modern view of CT is that there are societal pathologies

that are rooted in deficient rationalities of human progress and ethics (Honneth, 2009). Society is negatively affected by these pathologies, and the only way a society may be successful in terms of social justice for everyone is to maintain a high standard of rationality (Honneth, 2009). If some groups in a society are unable to achieve self-actualization, it is due to pathologies that lead to unequal opportunities and acceptance (Honneth, 2009).

Theme 4: Initial realization and reactions to being an underrepresented student. The fourth theme addresses this sub-question in terms of how the participants' thoughts and reactions upon realizing they would be one of a very small number of females or racial minorities in their collegiate program. Most of the participants did not know or consider they would be underrepresented in their collegiate aviation program, and they were surprised to learn they would be one of a small number of females or racial minorities. Almost all of them seemed to have some prior understanding that they would be in the minority in the industry, but they did not put much thought to it. Most of the participants were not aware of the history of female and racial minority discrimination in the aviation industry. To these participants, the dream of flying aircraft overrides any concerns about their status as an underrepresented member of the industry. In all cases, the participants found themselves to be equally accepted and supported within their school program and in particular, among their aviation peers and colleagues. They may have unique social wants and needs as underrepresented females or racial minorities, but as aviation students, they are supported in their pursuit of their goals the same as anyone else.

Summary

The purpose of this chapter was to provide the findings of this qualitative investigation and to provide narrative answers to the research questions based on those findings. The participants in this study provided rich responses that describe their personal experiences and

thoughts about what it means to be a student in their collegiate aviation program. Participant responses formed the basis for the development of five themes that describe the lived experience of being an underrepresented student in a collegiate professional pilot program. The five themes are the following: 1) Interest/passion for flying – filters their identity as an underrepresented student; 2) Relational thinking/drive verses rational thinking/drive – aspirations; 3) Environment and career supports; 4) Initial realization and reactions to being an underrepresented student, and 5) Developing behavior responses. Their lived experiences generally agree with the principles found in social cognitive career theory and critical theory relative to being an underrepresented person seeking a career in a White male dominated field. Underrepresented students develop a love for flying that transcends many of the influencers normally ascribed to career interest development and pursuit. The contextual environment of the underrepresented students helps to turn the interest for flying into a reality as they receive support and encouragement from parents, schoolteachers, faculty and staff, social peers, and others. They generally do not know how underrepresented they will be until they arrive at their collegiate program, but once they see the reality, they become motivated to perform well for themselves and for others who are underrepresented. They know being different will not be a deterrent or barrier from achieving their dreams and goals. Being part of a minority in the field in terms of gender or race may motivate them to want to perform well to represent others.

CHAPTER FIVE: CONCLUSION

Overview

The purpose of this transcendental phenomenological study was to explore what it means to be an underrepresented student in a collegiate professional pilot degree program. This chapter begins with a summary of the findings and it provides concise answers to each of the research questions. Using the data, analysis and findings from chapter four, the summary of findings provides a concise description of the meaning and essences of the lived experience of being an underrepresented student in a collegiate professional pilot degree program. This chapter also provides a discussion of the study findings in relationship to the empirical and theoretical literature. The chapter next addresses the theoretical, empirical, and practical implications of the study. The chapter covers the study's limitations and delimitations, and makes recommendations for further research.

Summary of Findings

Central Question

The central research question of this study was: What does it mean to be an underrepresented student in a collegiate professional pilot degree program? A female or racial minority student in a collegiate professional pilot degree program is an underrepresented student, which can mean many things depending on each individual student. In general, underrepresented students are aware that they are one of a small number of females or racial minorities in their collegiate aviation program. They typically do not know that they will be one of a very small number of their gender or race in their collegiate aviation program, and they may express surprise upon seeing the reality. Once they fully realize that there are not many other females or racial minorities in their program and in the pilot career field, they may become

motivated to perform well to represent their population and to be a role model for others. The underrepresented students, of course, want to be treated the same as anyone else, but at the same time they may feel isolated without others with whom to fully connect and relate and share experiences. They also want to maintain their own gender or race identity while feeling the need to conform within the majority group environment. They realize they will be underrepresented in their pilot career, and they use their time and experiences in the collegiate programs to prepare for the unknown future challenges.

Underrepresented students in an aviation program may expect they will encounter discrimination or negative attitudes from others, primarily White males, but in their programs, the general environment is one that is welcoming, and an environment in which everyone is treated the same. They will most likely encounter situations or comments that are gender or race based from others outside their program who are less familiar with seeing females and racial minorities as pilots. Although they may expect to encounter gender or race related comments or situations, most are surprised when they do. Females expressed surprise and annoyance, and African American males tended to express surprise even though many of them expected to encounter such behaviors. Hispanic males believed they are no different than anyone else seeking careers as pilots, and although they may acknowledge differences, they also believe that personal wants and desires transcend race differences and that everyone should be treated as being the same. The females believe they may be mistaken as flight attendants or someone who could not possibly be a pilot, and African Americans tend to be applauded for achieving the status and role of pilot. In other words, African Americans tend to experience people who are surprised to see them as pilots, which the African Americans themselves personally find to be surprising and odd. Female pilots will encounter jokes about women flying aircraft, and they

experience perceptions from males that females get the jobs ahead of males. African American pilots are well accepted in the programs, and they probably do not hear as many comments due to an environment where all are truly welcomed.

The underrepresented student in a collegiate aviation program enjoys acceptance and support from their university and program faculty and staff who desire to see them succeed. Faculty, staff and other aviation students generally treat all students equally and fairly in the programs. They exist in the shared experience of being an aviation student learning to fly aircraft, and they tend to find comfort and support in others within their underrepresented group. Female students look to other female aviation students for support, and African American students look to other African American aviation students for support. Underrepresented students, due to their visible differences and the history of gender and race in the U.S., may feel the need to work hard and perform well to represent their gender or race in aviation. Although the collegiate programs tend to minimize the physical differences of gender and race, the students most likely will encounter comments and attitudes by people outside their program, and less frequently by those within their program. They know they will be seen as something different, and they know that people will take notice of them and their performance.

Sub-Question 1

What influence do cognitive-person attributes have on meaning that is experienced and described by the underrepresented aviation student? Students desiring to pursue a career as a pilot may develop an interest or love for flying that transcends domain-specific self-efficacy. They just want to fly, and even though they may not know what it takes to get there, they develop an outcome expectation that they will become a pilot. The fact that they are part of an underrepresented group in aviation is not a part of their thinking. After they begin their

programs, they may experience a lack of confidence due to the rigorous academic and skill-based requirements, and their feelings of self-efficacy may diminish until they can develop self-confidence and agency in accomplishing their goals. Females tend to develop self-confidence later in the program as they achieve success in each program milestone and become more comfortable in navigating the path to achieving their goals. All of the African Americans expressed that they struggled in the beginning of their programs, but their particular struggles may not be unique to them as African American males. All of the African American participants said they did not realize how difficult the programs would be, and they had to learn how to study and apply themselves to their studies in a more disciplined manner. Many of them expressed the risk of losing their dream of becoming a pilot if they did not learn how to perform well academically. Although all students may encounter the same struggles in the beginning, underrepresented students may carry an additional burden to perform well to show that someone from their background can achieve the tremendous goal of becoming a professional pilot.

Many collegiate aviation students are beyond the interest stage of career development, and are motivated by a love or passion for flying. Underrepresented collegiate aviation students carry the additional motivation to not just succeed, but to perform well, because they may believe that others have the opinion they will not do well due to beliefs about females or racial minorities being pilots. These self-beliefs may negatively affect self-confidence and cause additional stress. For each of the participants, support from their families, from school faculty and staff, and from their aviation student peers is critical to their well-being and success.

Sub-Question 2

What influence do personal characteristics of gender and race have on meaning that is experienced and described by the underrepresented aviation student? Gender and race appear to

play almost no role for someone who decides they want to become a pilot and actually pursues that goal. All of the students in this study had support networks in their families and among their high school friends and significant adults that encouraged them to pursue whatever career they desire. Although they may not have known how to achieve their goal of becoming a professional pilot, they were excited to get started, and they generally did not know or consider they will be part of a small minority of students in a program preparing for a career in which they will be in a small minority. Many of the participants, prior to this study, did not consider what it means to be underrepresented. After they arrived to their program, they fully realized that they were in the minority. They looked for others who are like them in terms of gender or race, and they may have developed a desire to work hard to prove they can succeed. Many of them felt the need to perform well to represent all females or all racial minorities in aviation and to be a role model for others. Some even developed a desire to become a role model for others to influence other females or racial minorities to pursue the pilot career as they have done.

They know they will visibly stand out as a female or racial minority in their career, but they don't know how that will affect them yet. Their desire to become a professional pilot overrides any strong concerns about being a female or racial minority in aviation. Although some expect that discrimination could occur, they believe they will be able to handle it when it does. They believe that their performance as a pilot is the most important thing, and they work hard to be the best they can be for that reason.

Sub-Question 3

What influence does the contextual environment have on meaning that is experienced and described by the underrepresented aviation student? The environments in collegiate aviation programs are welcoming and fair to all, in which everyone at the school wants to see everyone

succeed in their goals. Underrepresented students feel they are treated fairly and they receive excellent support from their faculty, and other staff at the school. Each of the participants have parents that are very supportive of their career decisions. The students are in their programs with other students who have the same love and passion for flying and who are experiencing the same or similar struggles. Females and racial minorities in the programs will tend to look for others like them, i.e. other females or other students of the same race, but they also socialize and rely on students in their programs who are not of their gender or race. The common bond of being an aviation student transcends gender and race, but at the same time, most female and African American students also look for other females and African Americans, respectively, with which to associate and socially bond. Significant to their progress and experiences are the social relationships among other students in the programs that help them navigate and overcome challenges and to share in successes.

Sub-Question 4

What meaning does the underrepresented aviation student ascribe to his or her experience in terms of social justice and equality as it relates to their academic and career development? Underrepresented students enter their collegiate aviation program not knowing they will be underrepresented or not really considering what that means. Because of parent support and encouragement or other types of support, they are able to attend a college program to achieve their goals of earning a college degree and becoming a professional pilot. Therefore, in the beginning of their quest, they typically are not aware of the implications of social justice pertaining to certain careers. After they realize that they are part of a small minority of people in the field, they begin to develop perceptions of discrimination or sometimes experience moments of discrimination, but not generally within their collegiate program. What it means to them is

that they will exist in their career as one of a small few in terms of gender or race, and that fact influences them to want to be representatives of their gender or race. Some of the participants said they look forward to standing out in their career as one of the few who have succeeded despite societal beliefs and perceptions. Although some enjoy being noticeably different in terms of race or gender, they also would like to see increasing numbers of racial minorities or females. Females want to see more females in the career. Racial minority males want to see more racial minorities in the career. Most of the underrepresented students who expressed a desire to see more people of their gender or race in their career field also expressed a motivation to do well to show others that women and minorities are just like others in the career. Some of them participate in activities to promote aviation to youth.

Discussion

The purpose of this transcendental phenomenological study was to explore what it means to be an underrepresented student in a collegiate professional pilot degree program. Previous to this study, there have been little to no published studies that have a purpose of learning the lived experience of the underrepresented collegiate professional pilot student. Previous studies have looked at different aspects of being an underrepresented student in a professional pilot program from quantitative and qualitative perspectives including barriers faced and documenting the types of personal experiences of discrimination. Some studies looked at the reasons for persistent low numbers of females and racial minorities in pilot careers. This study focused on the lived experience of the students from an inner consciousness perspective to determine their own personal conscious realities in the collegiate aviation environment as they prepare to become professionals in a career where they will be significantly underrepresented. From a theoretical perspective, the study looked at how students' lived experiences align with social

cognitive career theory (SCCT) and critical theory (CT), which explain career choice and development from a social justice perspective and explain how underrepresented people seek self-determination in developing career interest and in choosing and preparing for careers. Specifically, SCCT focuses on many elements of an increasingly diverse world to explain and serve the needs of underprivileged groups and to promote social justice for all (Brown & Lent, 2013). CT has evolved over time, but it essentially provides a theoretical construct that explains social injustice and inequality as they relate to individual self-development and self-actualization within societies.

Relationship to Theoretical Literature

Each of the participants in this study expressed a love and a passion for flying aircraft, and all of them enthusiastically look forward to their future careers as professional pilots. The majority of the participants did not consider they would be underrepresented as females or racial minorities in their collegiate program or in their future careers. While they may have been surprised to learn they were in a significant minority in terms of those physical characteristics, they were not discouraged or deterred, and many of them embraced being different from the majority in the aspect of gender or race. Other past figures in aviation, both female and racial minority pilots, once they determined they wanted to become a pilot, were not deterred by being underrepresented. They simply wanted to pursue their career passion for flying aircraft.

SCCT is a theory that looks at the interactions of cognitive-person variables and aspects of personal characteristics and the contextual environment in the shaping of academic and career pursuits (Lent, Brown, & Hackett, 2000). Cognitive-person variables include self-efficacy, outcome expectations and personal goals, which interact with physical characteristics (e.g. gender, race) and the person's environment to influence career development (Lent & Brown,

2013; Lent, Brown, & Hackett, 2000). SCCT explains the manner in which self-efficacy beliefs, outcome expectations, and personal goals along with interest come together to promote personal agency (Betz & Hackett, 2006; Brown & Lent, 2013). According to SCCT, when a person possesses strong self-efficacy in a particular domain and when the person believes that positive outcomes will occur, interest in the related career may develop (Navarro et al., 2014).

For the majority of the participants, interest in flying aircraft and becoming a pilot started at a young age from taking a flight on an aircraft, or from watching aircraft fly and becoming fascinated with the technology and the wonder of flight, or from some other aircraft related experience. In many cases for those who pursue the career, the first time in a small aircraft is when the love for flying starts, and the young person decides that they want a flying career. Self-development and personal choices made during adolescent years determine options and interests that may be available later in life (Bandura et al., 2001). Many people encounter an aviation experience, but they never pursue the career. Those that do pursue the career probably have support from parents, mentors, role models or others that provided encouragement and belief that they could pursue their flying interest as a potential career. Support that significant others like parents and teachers provide are positively related to career decision self-efficacy and career outcome expectations. The same supports may also counteract negative influences of a youth's environment (Gushue & Whitson, 2006).

Most of the participants did not come from environments that gave them aviation knowledge, and they had to research the path to becoming a professional pilot. Many of them are the first pilots in their families. They started their collegiate programs knowing that was a path, but not knowing how to navigate the path and not knowing they would be significantly underrepresented by gender or race. They began with their interests and desires, and they

quickly learned about the challenges and difficulties of succeeding in the program. Each of the participants have supportive families and they entered collegiate aviation programs that provide needed support and encouragement to students. Brown and Lent (2013) say that self-efficacy develops not in isolation of social contexts, but its growth is also dependent upon the context of personal attributes such as gender and race/ethnicity, the environment, and the social interactions with people in that environment.

The professional pilot career remains underrepresented by females and racial minority members despite efforts over the last few decades to remove barriers and to influence females and racial minorities to become interested in aviation careers. For those who are underrepresented who have taken the path to becoming professional pilots in their collegiate aviation programs, the experience has generally been good. They experience the same academic, performance and financial struggles that many professional pilot students face, and they also feel supported and encouraged by their faculty, support staff members, and program peers. No one feels like they are treated differently. The racial minority males seem to not want to be classified or labeled as being different or underrepresented. Asking interview questions made many of the participants, particularly the males, consider things they have probably never considered before, i.e. regarding race issues and what it means to be underrepresented. They are all so focused on their own goal achievement, that they do not often consider the struggles and fears of others.

SCCT looks at how race, culture, and gender affect career self-efficacy beliefs and expectations in terms of the sociocultural context of career development (Gushue & Whitson, 2006; Tang et al., 2008). At the individual level, the status quo of a society or culture may be a significant inhibitor of a person's confidence to achieve personal desires. Family members, teachers, school counselors, peers, and others who have influence in a person's life play roles in

developing the person's self-efficacy (Litrico & Choi, 2013). Most of the young participants did not want to acknowledge or think that there may be gender or racial issues that affect them. It seems that some male Hispanic and Black males did not want to acknowledge that their physical differences may affect their desired career. Others know they could face issues of discrimination or negative comments, but they believe they will be able to overcome with good performance and grit.

The results revealed academic and flight training self-efficacy differences between males and females discussed in the literature (Hackett & Byars, 1996). Most of the participants spoke of relatively high self-confidence coming into their programs, then experiencing low self-confidence once they began their academic courses and flight training. Female participants acknowledged their belief that females have lower self-confidence levels than males when it comes to performing pilot flying tasks or demonstrating understanding of aircraft technical knowledge. Germain et al. (2012) noted that the professional pilot career field is cognitively challenging and male dominated; therefore, women may not only have to possess high self-efficacy in the field but also a high level of personal self-confidence (Germain et al., 2012). Self-efficacy is an important factor to promoting self-regulated learning and academic motivation (Matthews, Banerjee, & Lauermann, 2014).

MacPhee et al. (2013) showed women to have lower academic self-efficacy than men at the beginning of the program, but equal to men by the end. Although all of the participants expressed confidence they would complete their program and become professional pilots, they all acknowledged that their self-confidence increased as they successfully achieved each certification along the way. As explained by Germain et al. (2012), female participants who

learned how to take control of their learning and who received positive support by school staff, peers, and family gained self-confidence and a higher sense of self-efficacy.

As they develop cognitively and socially, young people, particularly female youth, need guidance and direction from significant others to gain encouragement and to develop positive self-efficacy enabling them to pursue their career goals (Hayes et al., 2012; Subich, 2012). Almost all of the participants explained that their parents, their friends in the program, and program faculty and staff provided needed support and encouragement to help them develop the confidence they needed to overcome the many challenges. The findings in this study agree with the theoretical literature that social support networks can be a necessity to overcome prejudices found in the workplace with typical support coming from family and friends, and from experienced mentors (Evans & Feagin, 2012).

Literature on Black males reports that they experience career barriers including racism, social isolation, and insensitivity to their unique needs and experiences. The interviews with the black male participants revealed almost no experiences of racism, social isolation, and insensitivity within their collegiate programs although most of the Black male participants also appeared reluctant to talk about racism or inequality from their perspective. Some of the participants expressed concern in the beginning about being the only Black male, but once they saw and met other Black males in the program, they felt better about their circumstances. It appears that some of them expected to experience some forms of racism or race-based discrimination, but even those participants acknowledged that they have not had any negative experiences in their programs. Each of the Black males appeared to feel more comfortable socializing with other Black males in the program, but they also interact equally with White males in their aviation program. In a collegiate aviation program, learning to fly aircraft is the

common bond that provides a strong context of shared experiences among all students in the aviation programs.

Environmental barriers to females and racial minorities in White male dominated careers can be characterized by chilly climate, which results from “negative interpersonal relations, subtle and overt denigration of skills, attribution of attainment to affirmative action policies, avoidance of eye contact, favoritism toward male and majority students, sexual harassment, and in the workplace, a dearth of opportunities to advance, failure to be recognized for contributions, and wage disparities” (Lichtenstein et al., 2014, p. 321). Most of the participants said that they have not personally experienced any negative gender or racial issues in their programs, although they can relate stories from others who have had negative experiences. Some of the females related that their male colleagues may joke about female pilots or treat female pilots differently. Some female pilots believe that some male pilots perceive females as having more opportunities available based on being a female pilot. Female pilots also may feel they need to conform to the overriding group mentality and have to put up with male talk. One female participant observed that young males grow up becoming accustomed to talking within all male groups, such as sports teams, and they may not be aware of how to adjust their talk when the academic or work group includes females. Female students may also be the target of a male aviation student’s desires for a dating relationship, which can cause stress and problems to overall peer group social dynamics within the aviation program and also when the male is the female student’s flight instructor.

Often, there is a lack of family member support for females entering male dominated occupations because family members may believe the occupations too dangerous or not appropriate for females (Germain et al., 2012). All of the female participants in this study have parents that support their career desires, although some of them described their grandparents as

not being as supportive due to perceptions and beliefs about females in male type careers.

Undergraduate African American student sense of belonging in the academic environment can depend on marital status, year in college, and number of cross-racial acquaintances (Strayhorn & Johnson, 2014). As mentioned previously, the Black male students have experienced little to no racial issues within their programs. They generally expressed that they will socialize with other aviation students regardless of race due to the aviation program shared experience, but they prefer to have peer relationships with students of their own race for mutual support within the underrepresented student shared experience.

Role models in the aviation field are not commonly available for African American youth, and likewise, they may not be available during the education and training career development phase (Harl & Roberts, 2011). Some of the students expressed that they see older students in the program as role models. They see the older students in positions and experiences in which they will soon be, and they feel comfortable about seeking advice from them. The frequency of cross-racial interactions on a college campus is a positive predictor for sense of belonging for White and Black students, with the influence being greater for Black students (Strayhorn & Johnson, 2014). One Black student expressed that he is comfortable in relationships with students of any race or ethnicity, but in general, other White students on his campus not in the aviation program do not readily acknowledge him.

A posit of classical critical theory is that peoples' identities are shaped when they leave the closed sphere of the family and encounter the social environment of the free market space (Honneth, 1991). Additionally, people tend to develop personal identities within the shared world of a social group due to an emotionally supported relationship of identities, with linguistic communication being the medium for the social learning process (Honneth, 1991; Honneth,

2009). As has been mentioned frequently, most of the participants were surprised to learn they are in a small minority in their aviation program in terms of gender and race. Each of them expressed their thoughts of how they responded to the situation. Many of them sought others of the same gender or race. Many of them also adopted a motivation to perform well and to be a good representative of their gender or race in the program. Most of them quickly realized the value of learning together with other students in the program, and through the shared experience of being an aviation student, they find mutual support with each other regardless of gender or race. In collegiate programs, the faculty and staff want all students to succeed, and all the participants reported a welcoming environment and great support from their program faculty and staff.

Relationship to Empirical Literature

Results revealed that many of the same issues faced by underrepresented students in STEM fields are also faced by students in aviation programs. A few reasons for the low numbers of women and racial minority representation in many science and engineering fields are a lack of role models and mentors, lack of support, isolation and no sense of community, and pressure to perform better than everyone else (Jaeger et al., 2013). Engineering majors need support from various social contacts such as friends, family, mentors and other students, and in particular female engineering students want support from other female students (Miller et al., 2015). Engineering student persistence and success, regardless of gender and race also relies on helpful instructors, academic assistance programs, personal agency, and personal interests (Miller et al., 2015). Participants in this study cited very few or no role models or mentors, or that role models and mentors were people not in the aviation field. Regarding lack of support, all participants said that their support from family, school faculty and staff, and from aviation student peers is

excellent, and the support is key to their success in the program. The participants for the most part experience an excellent sense of community in their aviation program. Most of them explained that the aviation students bond together regardless of gender and race, and at the same time, female students bond with other female students in the program, and Black males bond with other Black males in the program. Many of the participants cited motivation to perform well to show others they are competent pilots either for their own self-esteem or to represent their gender or race to be an example for others.

In general, the results agree with the study's two foundational theories regarding career interest and development among females and racial minorities in a White male dominated career field. Because there is a lack of literature on underrepresented students in the aviation career field, this study contributes to the understanding of that particular group. Although the aviation career field may be a STEM field, each STEM field has its own history and characteristics. Females and racial minorities are particularly underrepresented in the pilot career field despite efforts to influence and recruit more females and racial minorities into the career. The results of this study demonstrate that underrepresented students preparing for a professional pilot career have an overwhelming passion and love for flying and for the flying career. Their passion and love for flying appears to transcend many of the principles of SCCT and CT, at least in the beginning of their journey. The agreement with SCCT is that the participants all appear to have the right combination of contextual environmental supports that enabled them to turn their passion and love for flying into a realistic career development journey.

Within their collegiate environment, the participants experience relatively equal treatment and fairness. Outside of their collegiate aviation program environment, they may experience people who are not accustomed to seeing female or racial minority pilots, and that becomes part

of their lived experience and reality. For many of them, their response is a motivation to work hard and perform well to demonstrate they are just as competent, or more so, as any White male pilot and to represent all females or racial minorities that may want to become pilots.

This study contributes to the education and aviation fields and academic disciplines by adding empirical knowledge about the lived experience of underrepresented students in a collegiate professional pilot program. Specifically, passion and love for flying transcends the physical characteristics of gender and race. Also, the passion and love for flying may even transcend theoretical principles that self-efficacy is a precursor to developing an interest in a pilot career path. In this case, it is the personal goal of becoming a pilot that drives and overcomes lack of confidence or uncertain outcome expectations. A key component to the path of each of the participants appears to be strong contextual environmental supports including support and encouragement from parents and significant people in the lives of the students. Many young people may have an interest in aircraft and flying, but without encouragement and support from others, the interest may fade and die. In addition, many young females and racial minorities may be directly told by significant others or indirectly instructed by the popular media that females and racial minorities do not become pilots. This study demonstrates the importance of the contextual environment for influencing more youth to pursue and succeed in a professional pilot program.

An interesting finding is that most of the participants did not know how small the number of females or racial minorities would be in their program until their first days of class. They were quite surprised to learn they would be the only or one of a couple females or racial minorities in their aviation classes and programs. The realization influenced many of them to work harder for themselves and to be a representative of their underrepresented group. They

realized they would stand out, not being able to blend into the crowd, which influences them to want to perform well in their programs. In some respects, they enjoy being different, and in other respects they still want to be a part of the larger aviation community, treated the same as everyone else. They see the ability and even the responsibility to increase the number of underrepresented pilots by performing well and being a good representative. They also know they will be noticed and watched when they are in their professional career.

Implications

The purpose of this section is to address the theoretical, empirical, and practical implications of the study.

Theoretical Implications

In general, the findings on what it means to be an underrepresented student in a collegiate professional pilot program agree with the principles of SCCT and CT. The significant relations to the theories are in young peoples' beliefs about their ability to achieve their goal of becoming a professional pilot and how they view themselves entering a career that is historically dominated by White males. For each of the participants, interest in flying became a love for flying when they took a flight in a small aircraft, and it became a passion as they continued to experience flight in various situations. Each of the participants also have supportive parents who provided encouragement that they could pursue any career they desired regardless of societal norms or beliefs. For each of the underrepresented students, the cognitive-person variables interacted with their positive contextual environment to drive their interest in aircraft and flight to become a love for flying and a career pursuit. Most of the participants had little or no thought they would be one of a small number of females or racial minorities in their collegiate program, and many were

surprised to learn that the numbers of females and racial minorities in aviation are as low as they are.

SCCT implication for pilot career interest development. The SCCT implications of this study for pilot career interest development are that self-efficacy beliefs, psychological and social effects on physical characteristics, and the contextual environment each have a play on career interest development, but any one of the elements may be enough to influence motivation to pursue a career as an underrepresented person in the pilot career field. For each of the participants, it appears that family supports and supports from others provided the key ingredients needed to turn interest into a career goal. Many of the participants do not have any other family members who are pilots, and some of the participants will be the first in their families to obtain a college degree. Most of the participants did not have knowledge or did not consider that they would be underrepresented in the pilot career field. Even those that knew they would be in the minority, they did not realize how small the numbers are. Also, many of them did not consider or know about societal perceptions of female or racial minority pilots, and they did not know about the history of discrimination in the industry. When they expressed an interest in becoming a pilot, significant people in their lives supported and encouraged them.

SCCT recommendation for pilot career interest development. A potential method for influencing more females and racial minorities to pursue pilot careers is to focus on the contextual environments in which they live. The likely venues are schools and aviation organizations. For schools to be effective, teachers and guidance counselors need information and exposure to the aviation career field and to the roles that females and racial minorities have in aviation. Teachers who tell girls they should not be pilots, as in the case of one of the participants, are significant people in the lives of young people that can kill an interest or a

dream. Increasing numbers of females and racial minorities in collegiate aviation programs and in the industry can influence and change the overall contextual environment by providing more visible role models.

SCCT implication for the collegiate environment. The collegiate aviation environments are very supportive of all students regardless of gender or race. When the underrepresented students begin their collegiate program, they realize at that time how underrepresented they are, and they may begin to consider what that means. In addition, there are very few female and racial minority role models among university program faculty and staff for underrepresented students. It is at this point that the psychological and social effects of physical characteristics come into play. For many of them, they may feel somewhat alone and isolated, but they also may feel the need to perform well to be a representative of their gender or race. Although they will socialize with all students, many of them find comfort and support with those of like gender or race. The beginning of their collegiate aviation journey is also a time when the cognitive-person variable of self-efficacy and outcome expectations come into play as the rigors of the program affect their self-confidence in being able to achieve their goals. Major sources for self-efficacy are people who have influence in the student's life such as family members, teachers, school counselors, peers, and others (Litrico & Choi, 2013). The participants in this study represent those who have overcome self-confidence problems by relying on social supports from their family members, peers, and school faculty and staff.

SCCT recommendation for the collegiate environment. All of the participants feel very welcome and supported in their collegiate program and environment. To lessen the isolation that many underrepresented students feel, administrators within the programs should focus on recruiting female and racial minority students for the pilot career field. Collegiate

aviation program administrators should also recruit more females and racial minority members for faculty and staff, and they should support organizations that support females and racial minorities for the aviation field, such as Women in Aviation International and Organization of Black Airline Pilots. School administrators can also learn how they and their staff can play roles in the development of self-efficacy in their underrepresented students who came into the program with only an interest or love for flight and who now must work to achieve their career goals.

CT implications on underrepresented aviation students. From a CT perspective, the participants were not directly influenced by societal perceptions and beliefs about gender and race in the pilot career. They developed their career interest despite societal perceptions and beliefs and perhaps, they were isolated from those perceptions and beliefs because of their family environments. The female participants for the most part grew up in male environments and were accustomed to doing what society perceives to be male things. Due to their intense desire to become a pilot, the female participants who knew they would be in the minority were not deterred from pursuing the career. The African American participants may be accustomed to being in the minority in various pursuits, and they did not perceive the small numbers of African American pilots in the industry as being a barrier. Even so, the African American student participants were surprised at how low the numbers are, and most of them expressed a desire to do well to influence others to follow in their path.

Many other young people may develop an interest in flying and becoming a professional pilot, but the interest does not further develop due to a lack of support within the person's contextual environment. Some of the female participants related stories from others that spoke of young girls being told by parents and other authority figures that girls cannot become pilots.

Others told stories of people who express disbelief that there are female pilots – perhaps they have never seen a female pilot. Others related stories from people who believe that a pilot job is too dangerous for females. Information changes minds, and changed minds can lead to more contextual environmental support for the idea that females can be pilots just as well as males.

African Americans and other racial minorities may view the pilot career as being undesirable due to negative perceptions about the career. Participants reasoned that the few numbers of racial minorities may be a result of perceptions that flying aircraft is dangerous or that they will be in a career away from their familiar community, becoming isolated in an unknown environment. Again, the contextual environment can have a significant influence on career interest development, especially regarding careers that are unknown due to knowing no one who is a pilot or due to beliefs derived from popular media. Seeing other people in the job and having opportunities for learning about the career may be enough to develop an interest in flying. In other words, seeing females and racial minorities pilots more frequently and in greater numbers, may influence others to pursue an interest in flying.

CT recommendations on underrepresented aviation students. As discussed in the sections on SCCT related recommendations, information can change perceptions and beliefs. Since African Americans started flying as pilots for commercial airline companies in the early 1960s, and since females started flying as pilots for commercial airlines and the military in the early 1970s, there have been thousands who have entered the airline pilot career field. It is apparent from the participants' expressed thoughts and reflections that many negative perceptions about females and racial minorities flying as pilots still exist among the general public. While institutional barriers to females and racial minorities are no longer in place, they may have been replaced by persistent public perceptions and lack of knowledge about females

and racial minorities in the career. As one participant said, the idea that females do not fly as pilots may be subliminal due to popular media. The recommendations are the same as above in that information campaigns in the schools and other public places and in various media outlets can change public perceptions. In doing so, more people in the lives of young people may become supporters and encouragers for their career interests.

Empirical Implications

Empirical implications for the contextual environment in which the students live.

The empirical implications of this study are that contextual environmental supports matter as discussed in the theoretical implications section. Most of the participants had no knowledge of aviation or the pilot career prior to developing an interest in flight. They simply saw something or experienced something that sparked the interest. Due to positive supports along the way, their interest grew into a motivation to pursue a pilot career. In their collegiate programs, females and racial minorities are small in number, but they maintain a passion and motivation to fulfill their dreams despite their situation. When they become pilots, they cannot believe that they have achieved that significant milestone after so many years of having a developing interest. They are certified pilots just like everyone else who has become a certified pilot. Even so, how others see them and respond to them can shape their experience and response as an underrepresented person.

Almost all of the participants emphasized that support from others was a very important element to their success in the program. Generally, the primary sources of support are from parents, faculty and school staff, and their aviation peers. The female students rely on other females to share experiences and to provide mutual support. All of the participants socialize freely with other students regardless of gender or race, but they also rely on their own gender or

race friends in the program for mutual and contextual understanding. In this way, the students satisfy their relational and emotional needs while they strive to achieve the rational objectives required by the program. It may be that young people think more relationally than rationally, which may be due to a still growing knowledge and experience base as they prepare for their professional careers.

Females in the program may be more accustomed to being in underrepresented situations, i.e. majority male environments and situations, and therefore may have developed ways to handle gender-based circumstances as minority members of the group. On the other hand, some African American students may not be accustomed to being in such a significant minority situation and may feel more isolated as a result. Some of the Black participants spoke of looking around for Black instructor pilots, wondering if there were any, and being relieved when they found one. They expressed their relief by thinking and saying, if that person can become an instructor pilot, then maybe I can also.

Empirical recommendations for the contextual environment in which the students live. The current post-civil rights generation of youth are more accustomed to living in a world of diversity. Many of the participants commented that they believe their generation is more open than their preceding generations to other genders and racial groups in the workspace. The female participants believe they are more empowered in their environments than females in previous generations. However, because of extent of their underrepresentation in the aviation field, they still rely on social supports of other females or others of the same race as they navigate their struggles and fears. They rely on their social peers and friends for joy and for confidence building. To help build a strong contextual environment in the collegiate setting, schools should

continue to recruit female and racial minority faculty and staff and to intentionally seek ways to increase the female and racial minority student populations in the aviation programs.

Empirical implications for the general public environment in which the students live. Typical experiences encountered away from the collegiate aviation program environment include encounters with people who are not accustomed to seeing female or racial minority pilots. Many people may have a picture in their minds of pilots only being White males in a pilot uniform. People not accustomed to seeing female or racial minority pilots may find it surprising or interesting to see one, as related by some of the study participants. For the participants, experiencing how others see them may shape how they feel about themselves. Perhaps people don't want to see themselves as being different, but at the same time the participants feel a sense of accomplishment and pride for being one of a few in the field. To the underrepresented person, they look different, but inside their own consciousness, they don't want to be treated differently than anyone else. They just want to fit in, and they don't want to acknowledge that they are outwardly different than anyone else. In addition, they are generally not looking to be an activist fighting for their rights. They just want to pursue their passion for flying aircraft, and perhaps they unconsciously disregard the fact that they are one of a very few numbers of their gender and/or race. At the same time, they like being different, and they like hanging out with others like them. They may also wonder and reflect on how they will be treated in the industry because they are different. The students generally do not have a larger political agenda to change society. They just want to fly aircraft and to have a good career as a pilot.

Empirical recommendations for the general public environment in which the students live. Societal perceptions and beliefs can be hard to change. As pointed out earlier, younger generations may be more open to diversity in the workplace because it is the

environment they know. They are not as aware of historical discrimination and barriers to females and racial minorities. They are however surprised at how low the numbers are when they see the situation first-hand for the first time in their collegiate programs. Information campaigns can change perceptions and beliefs. When people see more images of females and racial minorities as pilots, their beliefs may change. An effective campaign to change perceptions could be one in which commercial and general aviation airports throughout the U.S. place images of female and racial minority pilots at work. The image products may be in the form of photos in magazines and brochures and on posters and framed pictures. While there are not enough female and racial minority pilots to be visible all the time, pictures and photos placed strategically for continuous coverage may help to change perceptions and beliefs.

Practical Implications

Practical implications for the learning environment. Most of the underrepresented students were surprised to learn how small their numbers are regarding gender and race. The average number of females in collegiate aviation programs is around ten to fifteen percent of a school's professional pilot degree program, and the number of female pilots in the airline industry is approximately four percent. The exact number of racial minorities of each type in collegiate programs nationally is unknown, but is probably somewhat representative of the airline pilot industry. For African Americans, the representation is approximately two percent of all airline pilots. Similarly, the number of female and racial minority faculty in collegiate aviation programs is also very low, and they also are an underrepresented group. Because of the low numbers, females and racial minorities in the programs do not have many choices for same gender or race peer support and for role models that truly understand their situations. Because the teachers are frequently White males and the majority of students are White males,

underrepresented students may feel they must conform to the majority group ways and language while at the same time strive to retain their own identity. In addition, because of their situation, many of the underrepresented students feel like they are representatives of their gender or race and therefore feel the need to perform well.

Practical recommendations for the learning environment. Knowing the lived experience of underrepresented students in collegiate programs is the first step to supporting the students in their academic and career goals. In addition to already stated recommendations for increasing the numbers of female and racial minority faculty and staff, current faculty and teaching staff can seek learning and understanding on how to provide particular supports to students. For instance, McCarthy et al. (2015) found that women might have to adapt their behaviors to be taken seriously, while men do not. The supports may be tailored to each group, and they can include the shaping of the learning environment to one that is open and effective for all groups while seeking to understand the learning behaviors of each group. Faculty workshops may be a good way to disseminate information and influence reflection on how to shape the learning environment for a diverse population of underrepresented students.

Practical implications for the career preparation experience. Overall, the students in the aviation programs do not appear to be negatively affected by their status as an underrepresented student. They indicate that their passion for the career continues to grow, and their self-confidence increases with each successful milestone achieved. The biggest factor in their continued career development success appears to be the support and encouragement they receive from family, friends and from school program faculty and staff. The support appears to be the key element that acts to nurture and promote positive motivation to succeed in a career pursuit that began as an interest in aircraft and flight.

Practical recommendations for the career preparation experience. Practically speaking, support for a career in aviation can begin in elementary, middle and high schools through STEM programs that include aviation. The key is orienting and educating teachers at those levels to be more aware of the aviation career field. Considering the lack of knowledge and the misperceptions about the aviation industry in general and the pilot career field specifically, aviation education institutions should focus information and recruiting efforts toward those who are underrepresented. Marketing campaigns and media should include female pilots and racial minority pilots, as many do already. National efforts at attracting females to the pilot career field continue to grow including efforts by the Women in Aviation International organization and other organizations for female aviators. To drive efforts at increasing the racial minority population in aviation, IHLs should go into the elementary schools and the middle schools to introduce and educate students about careers in the aviation industry. Collegiate aviation programs can support and host school field trips for local elementary, middle school and high school students.

Delimitations and Limitations

Delimitations

The purpose of this study was to learn what it means to be an underrepresented collegiate professional pilot student by developing a rich and thick description of their lived experience. A rich and thick description of the lived experienced enables the discernment of the essence of the experience for those people. I chose transcendental phenomenology as a method to learn the lived experience and the essence of the experience from a fresh and new perspective. To learn the lived experience of a collegiate aviation student, I had to go to the collegiate aviation programs and speak directly with the students in those programs. The study examines the

experiences of the students at their schools, and therefore I limited the participants and settings to collegiate programs that prepare students for professional pilot careers. The participants are current and active students enrolled in professional pilot degree programs.

The study is a look at a specific time period in the participants' lives, which is their collegiate career preparation period. Each of the participants had a lived experience prior to their time in their programs as they developed their career interest in flying aircraft and as they researched and prepared for their career development phase in a collegiate program. There are many paths to becoming a professional pilot, and a collegiate aviation program is one of those paths. Each of the study participants expressed a desire to achieve a college degree as part of their career preparation, which is why they chose the collegiate aviation path. People underrepresented as professional pilots also have a lived experience in their careers in the industry. The time in their collegiate programs is preparing them for that future lived experience.

The collegiate aviation program provides the academic and professional career knowledge along with the required FAA certifications and experience needed to become a professional pilot. For many people, the college phase of life represents the first time that people leave the support and protection of their families and become independent in having to seek their own supports. The college years in a professional degree program can be their first exposure to what their professional careers will be like. A successful and fulfilling professional career may depend on the education, training, and experience encountered and lived in their collegiate years. Knowing the lived experience of underrepresented students in their career preparation years in college can assist educators and aviation career advocates in changing the demographics for the

aviation industry, improving the experience of underrepresented students, and opening career opportunities for others.

Limitations

My desire was to learn the lived experience of underrepresented student in a collegiate aviation program, which are females and racial minorities (African American, Hispanic, and Native American). The sample depended on student enrollment and availability at the study schools. In this study, I was able to interview a good selection of White females, Black males, and Hispanic males. The data does not include African American and Hispanic females. Similarly, this study does not include Native Americans of either gender. Students with those racial minority backgrounds were not available for the study.

Two of the study schools have medium size aviation programs consisting of 200 to 500 professional pilot students, and one of the schools has a smaller aviation program consisting of less than 200 professional pilot students. A large program consisting of more than 500 professional pilot students at the school may have underrepresented students that have a different lived experience based on a larger total population of students, and a larger population of underrepresented students. It may be interesting to know if a large program has the same family type environment apparent in a small or medium size program as found in the three study schools.

Learning deeply about lived experiences may be dependent on establishing relationships with the study participants. Some phenomenological study methods advocate spending a longer amount of time with the participants than I was able to spend, and they advocate two or more interview sessions with each participant. Time, distance and busy college students prevented more than one in-depth interview with each participant, and prevented in-person follow-up.

Due to my career experience as a professional aviator, I count personal biases as a potential weakness to the study. Although I exercised extensive bracketing to remove biases as much as possible, I still found myself relating to the students' experiences. A researcher not in the aviation career field may derive different results from the data.

Recommendations for Future Research

Although I have biases due to my long career in the aviation field, I am also not a young student pilot in the current generation so my experience is different. Additionally, I am not a member of underrepresented group in aviation. I did not go through a collegiate aviation program in my career preparation. I am in a different generation, and I did my flight training in a different time. Students in this study found it interesting to discuss the concept of an underrepresented person in aviation. Even though the study participants were classified as underrepresented, most of the participants had not thoughtfully considered what that means. Because this research depends on drawing out lived experiences in an interview process, researchers who are not career aviators or who are of a different generation or life experience may derive different participant stories and results. Future research by a researcher who has a different life story could explore the same questions.

A collegiate professional pilot program is rigorous and many students encounter financial, academic, skill-based, social, and other types of struggles. A future study may include White male participants to compare their lived experience to the lived experiences of underrepresented students. Comparing the lived experience of a White male professional pilot student may enable a researcher to discern experiences that are unique to underrepresented students and experiences that may be common to all professional pilot students. A future researcher may also consider conducting a similar study at a historically black college or

university to see how lived experiences of those students, i.e. African American males and females, compares. A future study that includes Native Americans and racial minority females would also add to the data and knowledge of this study.

The participants in the study demonstrated a passion and love for flying and all appear to be on a successful path for achieving their career goals. Therefore, this study captured the essence of students who were driven to succeed in their goals and who are succeeding. Many aviation students do not persist all the way to program completion, and they seek alternative career goals. A future study could seek underrepresented students who started in a professional pilot program, but switched to another career program. Such a study may reveal a lived experience that is different, and help in better understanding the lived experience of successful student and what it takes to succeed.

Collegiate aviation programs in the U.S. have many different student population sizes. One potential study site I considered has a very small number of professional pilot students of which one or no students were African American male or African American female and only one or two were White female. In a school program that has one African American student, the lived experience for that student may be different from larger programs. At the other end of the spectrum, a program that has over 1000 students may have underrepresented students that have a different kind of lived experience. A future study could explore the lived experience of other types of programs and schools to compare results.

Summary

The purpose of this transcendental phenomenological study was to explore what it means to be an underrepresented student in a collegiate professional pilot degree program. A transcendental phenomenological study provides a means to discover the lived experience of

someone who is experiencing the phenomenon and to learn the essence of the experience. A response of one of the participants, which in many ways reflects the thoughts and experience of most of the study participants, summarizes the experience very well. His response may also reflect the thoughts of people who become interested in airplanes and the thought of flight, but never pursue flying due to their contextual environmental or self-imposed barriers.

I just want to say that I had many doubts about me being able to become a pilot because of my eyesight, financial barriers and me thinking I was not smart enough to do it. But this was all of my non-sensical fear of the unknown. Since I would be the first pilot in the family, I was on my own to lead the way. I started to do my own research, reach out to people who were in the industry, and I found out that I could do it. Thus, I made the decision to apply to a pilot program, got accepted, and this has been the best decision I have made in my life so far. If anyone out there wants to become a pilot but has doubts, I want to tell them that everyone has doubts, but don't let those doubts draw you back, instead let them be your motivation to succeed. If I can do it, you can do it. I was born in Mexico and my parents brought me to the U.S. when I was eleven years old. I didn't speak any English, and now I teach people how to fly airplanes and sometime soon fly with an airline. There are some limitations regarding to age and medical things, but always do your research and don't let anyone steer you away from your dreams.

Data analysis produced five themes that explained the essence of the experience and the phenomenon. The first theme, interest/passion for flying – filters their identity as an underrepresented student, says that the students are motivated and driven by their love and passion for aviation, which transcends their physical characteristics of gender and race. The second theme, relational thinking and drive verses rational thinking and drive – aspirations, and

the third theme, environment and career supports, say that underrepresented students think and experience life relationally and they rely heavily on their contextual environmental supports to pursue the career and to achieve their academic and career goals. The fourth theme, initial realization and reactions to being an underrepresented student, captures their surprise and experience of realizing they are very underrepresented and how they respond to the situation, primarily being motivated to working hard and representing their underrepresented group and by quickly finding other females or racial minority students for social support. The fifth theme, developing behavior responses, describes their experiences of being different by gender or race and how they respond internally and externally to other people as they consider how they will respond in their career.

The implications of the research show that major factors for success by females and racial minorities in collegiate professional pilot programs are their passion for flying, their strong aspirations to be pilots, and their support networks of family, faculty and staff, and friends. Although the same may be true of White male students, underrepresented students face additional challenges due to historical and societal beliefs and perceptions about women and racial minorities as pilots. The students recognize they are visibly different by gender or race, but they may not feel different on the inside. Their desire to become a pilot transcends any thoughts of being one of those who are underrepresented in the career by physical characteristics of gender or race. Knowledge is the difference maker, and the path to knowledge is for aviation professionals to take the opportunities and possibilities of aviation directly and indirectly to those who are underrepresented in the career field.

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APPENDIX A: RESEARCH PLAN SUMMARY

The lived experiences of underrepresented female and racial minority students in collegiate aviation programs are not well known. Because the aviation industry is primarily white and male, education and training systems have been primarily and historically sourced from white male educators and instructors. Women and racial minorities in such programs may find themselves isolated in an environment that has a white male collective identity. There is a lack of knowledge about what it means from a personal inner consciousness frame of reference to be a female or a racial minority collegiate aviation student in the historically and culturally white male collegiate aviation environment. As a result, it is not well known how such underrepresented students in professional pilot degree programs cope in their learning or how the cognitive-person, personal characteristics, and environment impact their career development in an academic setting.

The purpose of this qualitative transcendental phenomenological study is to explore what it means to be an underrepresented student in a collegiate aviation professional pilot program. The proposed sites for the study will be three universities with four-year professional pilot degree programs. 12-15 participants (ideally 4-5 at each university) will be purposefully selected as those who experience the phenomenon as an underrepresented student, are interested in understanding the phenomenon, and are able to articulate their experiences as an underrepresented student. Data collection will be from interviews, focus groups, participant written reflections, and researcher journaling. Knowing and understanding the meaning that underrepresented students hold while engaged in a professional pilot degree program will help in facilitating underrepresented students' academic success and preparation for a satisfying and rewarding career in the aviation industry.

APPENDIX B: SUMMARY GUIDE FOR ADMINISTRATORS

Dear Sir/Ma'am,

This is a request for assistance in selecting student participants for a qualitative study investigating the lived experience of underrepresented students enrolled in a collegiate professional pilot degree program. The following is a description of the requested study.

The participants for the proposed research study should be 12 to 15 purposefully selected undergraduate students enrolled in a professional pilot degree program (ideally 4 – 5 at each of three different universities). Purposeful sampling should be used to select the participants, the criterion being underrepresented students in a collegiate professional pilot degree program. Each participant should meet the definition of underrepresented student by race (African American, Hispanic, Native American) and/or gender (female), which means each participant should be one who has experienced the phenomenon of being an underrepresented student in the aviation professional pilot degree program due to race and/or gender and is capable of providing full descriptions of their experiences including situation and behaviors. Participants should also indicate a strong interest in personally understanding the meanings of the phenomenon they are experiencing, and they should be willing to participate in a interview and a focus group. Participants should be willing to be audio-recorded, and to have the data published in a dissertation and potentially other publications.

Target year groups are second, third or fourth year students who have been in the program at least one full academic year to ensure the participants have had experience with the phenomenon. It is desirable to select at least one participant from each of the underrepresented racial/ethnic minority demographic groups (i.e., African American, Hispanic, or Native

American) and at least two female participants from each of the selected schools. A participant may be a transfer student from a different aviation college or university, but should have completed at least one full academic year at the present school. Participant students should have completed a minimum of the Private Pilot certification at the subject school, which demonstrates a good level of commitment to pursuing a professional pilot career and helps to ensure that the student has fully experienced the phenomenon at that setting.

The following will be asked of each student:

- Complete a pre-interview questionnaire (attached)
- One-on-one audio recorded interview (60 to 90 minutes)
- One focus group consisting of all the participants (60 to 90 minutes)
- Complete a post-interview questionnaire (same survey as the pre-interview survey)

All data will be protected and secured with names removed from the data. Your institution will only be referred to by a pseudonym name. Students will be asked to complete a consent form (attached). Student participants may withdraw from participation at any time if they choose.

APPENDIX C: LIBERTY UNIVERSITY IRB CONDITIONAL APPROVAL**LIBERTY UNIVERSITY**
INSTITUTIONAL REVIEW BOARD

March 5, 2018

Jim Molloy IRB **Conditional Approval** 3157.030518: A Transcendental Phenomenological Study Exploring What it Means to be an Underrepresented Student in a Collegiate Aviation Program

Dear Jim Molloy,

We are pleased to inform you that your study has been **conditionally** approved by the Liberty University IRB. Conditional approval means that your complete approval is pending our receipt of certain items, which are listed below:

-Documented approval on letterhead from each research site you are enrolling in your study.

Please keep in mind that you are not permitted to begin data collection until you have submitted the above item(s) and have been granted complete approval by the Liberty University Institutional Review Board.

Thank you for your cooperation with the IRB, and we wish you well as you continue working toward complete approval.

Sincerely,

G. Michele Baker, MA, CIP

Administrative Chair of Institutional Research

The Graduate School

Liberty University | Training Champions for Christ since 1971

LIBERTY
UNIVERSITY.

APPENDIX D: LIBERTY UNIVERSITY IRB FULL APPROVAL**LIBERTY UNIVERSITY**
INSTITUTIONAL REVIEW BOARD

March 15, 2018

James P. Molloy

IRB Approval 3157.031518: Launching Dreams? A Transcendental Phenomenological Study
Exploring What it Means to be an Underrepresented Student in a Collegiate Aviation Program

Dear James P. Molloy,

We are pleased to inform you that your study has been approved by the Liberty University IRB. This approval is extended to you for one year from the date provided above with your protocol number. If data collection proceeds past one year, or if you make changes in the methodology as it pertains to human subjects, you must submit an appropriate update form to the IRB. The forms for these cases were attached to your approval email.

Thank you for your cooperation with the IRB, and we wish you well with your research project.
Sincerely,

G. Michele Baker, MA, CIP

Administrative Chair of Institutional Research

The Graduate School

Liberty University | Training Champions for Christ since 1971

APPENDIX E: PERMISSION REQUEST LETTERS TO SCHOOLS

February 5, 2018

University Research Compliance Office
Western University

IBC Committee:

As a graduate student in the School of Education at Liberty University, I am conducting research as part of the requirements for a Doctor of Education degree. The title of my research project is A Transcendental Phenomenological Study Exploring What it Means to be an Underrepresented Student in a Collegiate Aviation Program, and the purpose of my research is to explore and describe what it means to be an underrepresented student in a collegiate professional pilot degree program.

I am writing to request your permission to conduct my research at Western University within the Eagle School of Aeronautics. My study is qualitative, and I will seek 4-6 research participants who are students in the Eagle School of Aeronautics.

Participants in this study will be asked to complete a short questionnaire, a one-on-one semi-structured interview, and a focus group all in accordance with qualitative phenomenological research procedures. Data will be used to construct a rich description of the experience of underrepresented students, and to determine the essence of the phenomenon. Participants will be presented with informed consent information prior to participating. Taking part in this study is completely voluntary, and participants are welcome to discontinue participation at any time.

Thank you for considering my request. If you choose to grant permission, please provide a signed statement on official letterhead indicating your approval, or respond by email to jmolloy@liberty.edu.

Sincerely,

James P. Molloy
Liberty University School of Aeronautics

March 5, 2018

Research Compliance Office
Central University

Compliance Officer:

As a graduate student in the School of Education at Liberty University, I am conducting research as part of the requirements for a Doctor of Education degree. The title of my research project is A Transcendental Phenomenological Study Exploring What it Means to be an Underrepresented Student in a Collegiate Aviation Program, and the purpose of my research is to explore and describe what it means to be an underrepresented student in a collegiate professional pilot degree program.

I am writing to request your permission to conduct my research at Central University within the Falcon School of Aeronautics. My study is qualitative, and I will seek 4-5 research participants who are students in the Falcon School of Aeronautics.

Participants in this study will be asked to complete a short pre- and post-interview questionnaire, a one-on-one semi-structured interview, and a focus group all in accordance with qualitative phenomenological research procedures. Data will be used to construct a rich description of the experience of underrepresented students, and to determine the essence of the phenomenon. Participants will be presented with informed consent information prior to participating. Taking part in this study is completely voluntary, and participants are welcome to discontinue participation at any time.

Thank you for considering my request. If you choose to grant permission, please provide a signed statement on official letterhead indicating your approval, or respond by email to jmolloy@liberty.edu.

Sincerely,

James P. Molloy
Liberty University School of Aeronautics

March 5, 2018

Office of Institutional Research and Effectiveness
Eastern University

IRB Team:

As a graduate student in the School of Education at Liberty University, I am conducting research as part of the requirements for a Doctor of Education degree. The title of my research project is A Transcendental Phenomenological Study Exploring What it Means to be an Underrepresented Student in a Collegiate Aviation Program, and the purpose of my research is to explore and describe what it means to be an underrepresented student in a collegiate professional pilot degree program.

I am writing to request your permission to conduct my research at Eastern University within the Hawk School of Aeronautics. My study is qualitative, and I will seek 4-5 research participants who are students in the Hawk School of Aeronautics.

Participants in this study will be asked to complete a short pre- and post-interview questionnaire, a one-on-one semi-structured interview, and a focus group all in accordance with qualitative phenomenological research procedures. Data will be used to construct a rich description of the experience of underrepresented students, and to determine the essence of the phenomenon. Participants will be presented with informed consent information prior to participating. Taking part in this study is completely voluntary, and participants are welcome to discontinue participation at any time.

Thank you for considering my request. If you choose to grant permission, please provide a signed statement on official letterhead indicating your approval, or respond by email to jmolloy@liberty.edu.

Sincerely,

James P. Molloy
Liberty University School of Aeronautics

APPENDIX F: PARTICIPANT RECRUITMENT LETTERS AND FLYER

February 5, 2018

Dear [Recipient]:

As a graduate student in the School of Education at Liberty University, I am conducting research as part of the requirements for a Doctorate of Education degree. The purpose of my research is to explore what it means to be an underrepresented student in a collegiate professional pilot degree program, and I am writing to invite you to participate in my study.

You are invited to participate in this study because you are a Liberty University School of Aeronautics graduate who meets the criteria for an underrepresented student in a collegiate professional pilot degree program (female and/or racial minority group). Each participant should meet the definition of underrepresented student by race or gender, which means each participant should be one who has experienced the phenomenon of being an underrepresented student in the aviation professional pilot degree program due to race and/or gender and is capable of providing full descriptions of their experiences.

If you meet the criteria identified above and are willing to participate, you will be asked to partake in a pre-interview questionnaire, one-on-one interview, focus group, and post-interview questionnaire. Participants will also be given an opportunity to review and revise their transcribed interviews for accuracy. The total approximate time for these procedures is 3-5 hours. Your name and other identifying information will be requested as part of your participation, but the information will remain confidential.

A consent form is provided with this letter for reference. The consent form contains additional information about my research. If you agree to participate, I will have you sign the form and return it to me when I arrive at your university campus and prior to completing the pre-interview questionnaire.

If you choose to participate, you will receive a gift card of \$10.00 to a local restaurant or coffee shop as an expression of appreciation for your time and effort.

Sincerely,

James P. Molloy
Liberty University School of Aeronautics

REQUESTING RESEARCH PARTICIPANTS

Project Title: *A Phenomenological Inquiry into the Meaning of Being an Underrepresented Student in a Collegiate Professional Pilot Degree Program*

As a doctorate student in the School of Education at Liberty University, I am conducting research to explore what it means to be an underrepresented student in a professional pilot degree program. The lived experiences of underrepresented female and racial minority students in collegiate aviation programs are not well known. There is a lack of knowledge about what it means from a personal inner consciousness frame of reference to be a female or a racial minority aviation student in the historically white male collegiate aviation environment.

I am requesting student participants who meet the criteria for an underrepresented student in a professional pilot degree program (female and/or racial minority group). Each participant should meet the definition of underrepresented student by race and/or gender, which means each participant should be one who has experienced the phenomenon of being an underrepresented student in the aviation professional pilot degree program due to race and/or gender and is capable of providing full descriptions of their experiences.

Participants should be second, third or fourth year students who have been in the program at least one full academic year to ensure they have had experience with the phenomenon. Participant students should have completed a minimum of the Private Pilot certification at the school.

If you meet the criteria identified above and are willing to participate, you will be asked to partake in a pre-interview questionnaire, a 60-90 minute one-on-one interview, a 60-90 minute focus group, and post-interview questionnaire. Participants will also be given an opportunity to review and revise their transcribed interviews for accuracy. Your name and other identifying information will be requested as part of your participation, but the information will remain confidential.

If you choose to participate, you will receive a gift card of \$10.00 to a local restaurant or coffee shop as an expression of appreciation for your time and effort.

Students who wish to participate in this study may email me directly at jmolloy@liberty.edu.

Sincerely,

James P. Molloy
Liberty University School of Aeronautics

RESEARCH PARTICIPANTS NEEDED
FOR A PHENOMENOLOGICAL STUDY EXPLORING
WHAT IT MEANS TO BE AN UNDERREPRESENTED STUDENT IN A
COLLEGIATE AVIATION PROGRAM

The lived experiences of underrepresented female and racial minority students in collegiate aviation programs are not well known. Because the aviation industry is primarily white and male, there is a lack of knowledge about what it means from a personal inner consciousness frame of reference to be a female or a racial minority collegiate aviation student in the collegiate aviation environment.

I am conducting research to explore what it means to be an underrepresented student in a collegiate professional pilot degree program.

If you meet the criteria of underrepresented student by race or gender or both, and you are willing to provide full descriptions of your experiences, this invitation is for you. Target year groups are second, third or fourth year students who have been in the program at least one full academic year. Participant students should have completed a minimum of the Private Pilot certification.

If you agree to participate, you will be asked to partake in a pre-interview questionnaire, one-on-one interview (60-90 minutes), focus group (60-90 minutes), and post-interview questionnaire. You will also be given an opportunity to review and revise your transcribed interviews for accuracy. The total approximate time for these procedures is 3 to 5 hours. Your name and other identifying information will be requested as part of your participation, but the information will remain confidential.

Participants will receive a gift card of \$10.00 to a local restaurant or coffee shop as an expression of appreciation for your time and effort.

If you are interested in participating or learning more, you may contact me at jmolloy@liberty.edu

Jim Molloy
Candidate for Doctor of Education (Ed.D.)
Liberty University School of Aeronautics

APPENDIX G: PARTICIPANT SCREENING MEASURE

Information entered will be transcribed into the computer files, and the form will be shredded.

Personal Information

1. First and Last Name _____
2. Year in School (i.e. sophomore, junior, senior, etc.) _____
3. Year at this particular School _____
4. Major _____
5. FAA Ratings Completed _____
6. Marital Status _____
7. Gender / Race _____
8. Email _____

One-on-One Interview Date/Time/Place: _____

Focus Group Date/Time/Place: _____

APPENDIX H: CONSENT FORM

CONSENT FORM

A Transcendental Phenomenological Study Exploring What it Means to be an Underrepresented Student in a Collegiate Aviation Program

James P. Molloy
Liberty University
School of Education

You are invited to be in a research study to explore what it means to be an underrepresented student in a collegiate professional pilot degree program. You were selected as a possible participant because you are a student or graduate of a professional pilot degree program who meets the criteria for an underrepresented student in a collegiate professional pilot degree program (female and/or racial minority group). Each participant should meet the definition of underrepresented student by race or gender, which means each participant should be one who has experienced the phenomenon of being an underrepresented student in the aviation professional pilot degree program due to race and/or gender and is capable of providing full descriptions of their experiences including situation and behaviors. Target year groups are second, third or fourth year students who have been in the program at least one full academic year to ensure the participants have had experience with the phenomenon. Participant students should have completed a minimum of the Private Pilot certification at the subject school as this certification demonstrates a good level of commitment to pursuing a professional pilot career and helps to ensure that the student has fully experienced the phenomenon at that setting. Participants can also be a graduate of a professional pilot degree program. Please read this form and ask any questions you may have before agreeing to be in the study.

James P. Molloy, a doctoral candidate in the School of Education at Liberty University, is conducting this study.

Background Information: The purpose of this study is to explore what it means to be an underrepresented student in a collegiate professional pilot degree program. There have been very few studies that seek to describe the lived experiences of females and racial minorities in collegiate aviation programs, and this study has a primary purpose to fully describe the phenomenon and to capture the essence of the experiences. The primary research question is: What does it mean to be an underrepresented student in a collegiate professional pilot program?

Procedures: If you agree to be in this study, I will ask you to do the following things:

1. Complete a pre-interview questionnaire. The purpose of this questionnaire is to reflectively consider your experiences as a professional pilot student. Estimated time to complete the questionnaire is 30 minutes.
2. Complete a 60 – 90 minute one-on-one interview for the purpose of recording your personal experiences as a professional pilot student. The interview will be audio recorded. I may use a professional transcriptionist to transcribe the audio recordings.

3. Take part in a 60 – 90 minute focus group session with participation of all the participants (approximately 3 – 6 participants in your school) that will also be audio recorded and transcribed.
4. Complete a post-interview questionnaire. The purpose of this questionnaire is to capture your thoughts about your experience as a result of reflection after the interview and focus group session. Estimated time to complete the questionnaire is 30 minutes.
5. I may request a follow-up email or phone interview of not more than 30 minutes, if needed. During this time, you will be given an opportunity to review and revise your transcribed interviews for accuracy.

Risks: The risks involved in this study are minimal, which means they are equal to the risks you would encounter in everyday life. If I become aware of knowledge of child abuse, child neglect, elder abuse, or intent to harm self or others, I must report the information in my role as a mandatory reporter.

Benefits: There are no direct benefits to participants in this study.

Benefits to society include greater understanding of the experiences of the underrepresented student in collegiate aviation. The study will contribute knowledge in this area, and it may have a benefit to the aviation career field.

Compensation: Participants will be compensated with a token gift card of \$10.00 to a local restaurant or coffee establishment for agreeing to participate in this study.

Confidentiality: The records of this study will be kept private. In any sort of report I might publish, I will not include any information that will make it possible to identify a subject. Research records will be stored securely, and only the researcher will have access to the records. I may share the data I collect from you for use in future research studies or with other researchers; if I share the data that I collect about you, I will remove any information that could identify you, if applicable, before I share the data.

- Participants will be assigned a pseudonym to protect their identities. I will conduct the interviews in a location where others will not easily overhear the conversation. The interviews will be conducted in a place that is convenient and comfortable for each participant.
- The place of the interview will afford some degree of privacy and quietness to allow the participant to speak freely and to ensure clear audio recording. If the participant is comfortable in a more public setting such as a restaurant, coffee shop, or student lounge, then the interview can take place in one of those types of settings.
- The focus group sessions will be conducted in a briefing room or conference room that is big enough to comfortably seat everyone in the focus group. The audio recording device will be placed on the table to record all participants.
- Data from each participant will be maintained in separate computer folders. Data stored on the computer will be password protected. Data in hard copy will be kept in a secure place and locked in a file cabinet when not being utilized. If using a professional

transcriber, I will ensure the transcriber will not misuse the information. Data may be used in future presentations. After three years, all electronic records will be deleted.

- Interviews and focus groups will be recorded and transcribed. Recordings will be stored on a password locked computer for three years and then erased. Only the researcher, and a professional transcriptionist if used, will have access to these recordings.
- I will take care that all data is secured to maintain confidentiality of the participants. I cannot assure participants that other members of the focus group will not share what was discussed with persons outside of the group.

Voluntary Nature of the Study: Participation in this study is voluntary. Your decision whether or not to participate will not affect your current or future relations with Liberty University or your university. If you decide to participate, you are free to not answer any question or withdraw at any time without affecting those relationships.

How to Withdraw from the Study: You may withdraw from the study at any time. If you choose to withdraw from the study, please contact the researcher at the email address/phone number included in the next paragraph. Should you choose to withdraw, data collected from you, apart from focus group data, will be destroyed immediately and will not be included in this study. Focus group data will not be destroyed, but your contributions to the focus group will not be included in the study if you choose to withdraw.

Contacts and Questions: The researcher conducting this study is James P. Molloy. You may ask any questions you have now. If you have questions later, **you are encouraged** to contact him at 703-477-0872 and/or jmolloy@liberty.edu. You may also contact the researcher's faculty chair, Dr. John Duryea at jrduryea@liberty.edu.

If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher, **you are encouraged** to contact the Institutional Review Board, 1971 University Blvd., Green Hall Ste. 1887, Lynchburg, VA 24515 or email at irb@liberty.edu.

Please notify the researcher if you would like a copy of this information for your records.

Statement of Consent: I have read and understood the above information. I have asked questions and have received answers. I consent to participate in the study.

The researcher has my permission to audio-record me as part of my participation in this study.

Signature of Participant

Date

Signature of Investigator

Date

APPENDIX I: INTERVIEW GUIDE

1. Please introduce yourself to me and tell me a bit about yourself.
 - Year in school, academic major, FAA ratings, marital status
2. Please tell me how you became interested in pursuing a career in aviation as a pilot? (Seidman, 2013). For example: family influences, school experiences, other. (SQ4)
3. What influenced you to pursue your career through a collegiate aviation program? What influenced you to choose this career path? What role has race or gender played in your career decision? (Lent & Brown, 2013). (CQ)
4. Why did you come to this school? (CQ; SQ4)
5. What is it like to be a student in your degree program? What are the details of your daily/weekly student life? (Seidman, 2013). What does it mean for you to be a student in your degree program? (Seidman, 2013). Describe a typical day. Describe a stressful day. (CQ; SQ4)
6. What situations, incidents, events, and people within your collegiate aviation experience stand out for you? (Moustakas, 1994). (CQ; SQ4)
7. Self-efficacy: How much confidence do you have in your ability to complete your degree program and continue your career desires? Briefly describe the experiences that you feel have had the most impact (positive or negative) on your level of confidence (Miller et al., 2015) (SQ1; SQ4)
8. Personal Characteristics, Supports: Can you give me an example of a time you recognized yourself as an underrepresented student? (van Manen, 1990). What role has race or gender played in your experience? (Lent & Brown, 2013). (SQ2; SQ4)

9. Personal Characteristics, Supports: What sort of things did you do to cope with the barriers or hurdles encountered? How successful were you? (Miller et al., 2015) (SQ2; SQ4)
10. Personal Characteristics, Supports: Can you think of a particular event, situation, person or experience with which you were aware of being one of the minority in terms of race or gender? How did you feel at the time? (van Manen, 1990). Try to draw out a story (Seidman, 2013). (SQ2; SQ4)
11. How did the particular experience affect you? What changes did you perceive with the experience? (Moustakas, 1994). What was that like for you? (Seidman, 2013). What happened? (Seidman, 2013). What feelings were generated by the experience? (Moustakas, 1994). (SQ2)
12. Supports/Social Supports/Environment: What has helped you to be successful? (Lent & Brown, 2013). Do you use any additional resources to help you to succeed? (Miller et al., 2015) (SQ3)
13. Perceived Positive Outcomes: What do you hope to achieve in your degree program? What are your sources of positive outcome expectations (Miller et al., 2015) (SQ1; SQ4)
14. Tell me how you find joy, comfort, or support in your school environment. (Åberg & Hedlin, 2015; Lappalainen et al., 2012). (CQ; SQ3)
15. What other thoughts stand out for you? (Moustakas, 1994). (CQ; SQ4)
16. Have you shared all that is significant with reference to your experience? (Moustakas, 1994). (CQ; SQ4)
17. What advice would you give to someone interested in pursuing a professional pilot career? (CQ; SQ4)

APPENDIX J: FOCUS GROUP GUIDE

Generally, the same questions will be asked, but new ones may be formulated based on interview responses.

APPENDIX K: PILOT STUDY DESCRIPTION

A pilot study will be conducted with two to three students at my university to test the interview questions and to gain a frame of reference for conducting data collection. A pilot study will also help me to plan for interview scheduling and to gain perspectives on the complexities associated with conducting interviews. I will ask two to three students to participate in a pilot study. I will schedule and conduct one-on-one interviews to test the questions, and I will conduct a focus group session with the pilot study students to further test the questions in a focus group setting. Ideally, the pilot study will be conducted over a one-week period to mirror the timing of the actual study. I will not keep any data from the pilot study, nor will I record the pilot study sessions. I will only take notes that reflect the effectiveness of the questions and the mechanics of the interview sessions.

APPENDIX L: STUDY DESCRIPTION AND INSTRUCTIONS

Project Title: *A Phenomenological Inquiry into the Meaning of Being an Underrepresented Student in a Collegiate Professional Pilot Degree Program*

The project study is a qualitative study being conducted by Jim Molloy as an authorized part of the education and research program of Liberty University.

The purpose of this study is to explore what it means to be an underrepresented student in a collegiate professional pilot degree program. There have been very few studies that seek to describe the lived experiences of women and racial minorities in collegiate aviation programs, and this study has a primary purpose to fully describe the phenomenon and to capture the essence of the experiences.

Participants will be asked to complete a pre- and post-interview questionnaire to help capture reflective thoughts on paper. Each participant will participate in a 1 to 1 1/2 hour semi-structured one-on-one interview. In addition, each participant will participate in a 1 to 1 1/2 hour focus group consisting of three to six participants. Each interview session will be audio recorded for the purpose of collecting data. The interview sessions will be scheduled during a one-week period at the participant's school. After the interviews are transcribed, participants will be asked to review their responses, and will be asked to make changes as necessary to accurately capture their experiences. At this time, there may also be follow-up questions, which will be sent by email.

No personal names or any other personally identifying marks will be attached to any of the data (the audio recorded interviews, focus groups or transcripts), and the code sheet linking personal identity information with my data will be kept in a locked and protected location. The audio recording media will be secured. Participation in this research is entirely voluntary. Participants may decline to answer any specific question asked in interviews, and participation in this study is confidential.

Participation in this study will help the aviation community as a whole by providing rich descriptions of the lived experience of aspiring aviation professionals who are underrepresented in the field. Knowing the lived experience of underrepresented collegiate aviation students can help in academic curriculum development and in career development planning. In addition, participants will have the unique opportunity to participate in the academic research process as co-researchers in a qualitative study.

Jim Molloy, Principle Investigator
Liberty University

**APPENDIX M: PRE- AND POST-INTERVIEW REFLECTIVE
QUESTIONNAIRE**

Information entered will be transcribed into the computer files, and the form will be shredded.

Personal Information

1. First and Last Name _____
2. Year in School (i.e. sophomore, junior, senior, etc.) _____
3. Year at this particular School _____
4. Major _____
5. FAA Ratings Completed _____
6. Marital Status _____
7. Gender / Race _____
8. Email _____

Pre-interview Written Reflection Questions

1. When did you become interested in aviation as a career?
2. How did you become interested in aviation as a career, or what influenced your desire to pursue an aviation career?
3. Why did you choose to pursue your aviation career through a collegiate program?
4. Describe your motivation for becoming a professional pilot and your belief that you can become a professional pilot.

APPENDIX N: MEMBER CHECKING INSTRUCTIONS

Following transcription of the audio-recorded one-on-one interviews, I will send an email to each of study participants to ask him or her to check the responses for accuracy. Participants will be able to change their responses as they see fit, to best capture their thoughts on the phenomenon. The emails with attachments will be saved in the secured files along with other data files.

Example mail to participants:

Dear Research Participant,

Please find attached transcription of your one-on-one interview. Please review your responses for accuracy. You may change your response by writing on the document in tracked changes. The key to this study is to accurately capture your experiences as an underrepresented student. If you believe a different response than the one provided in the one-on-one interview serves the purpose better, than you may change your response.

(As required) In addition, I have the following follow-up question(s) regarding your response to...

Once your review is complete, you may reattach the document to an email and return it to me. Thanks again for your participation in this study. I hope it has been a good and meaningful experience for you.

James P. Molloy
Principle Researcher
Doctorate Student
Liberty University School of Education

APPENDIX O: SAMPLE PARTICIPANT TRANSCRIPT

- Speaker 1: So, now it's recording. And what you'll see me do is every once in a while, you're talking, I'll pick this up just to make sure
- Speaker 2: Make sure, yeah. (Laughs)
- Speaker 1: It's like that cross-checking going, make sure, Yup, my engine's still running.
- Speaker 1: Right, you can just pick right back up, how did you, uh, become interested in pursuing a career as a pilot? Y'know, your family influences, experiences, something that happened, something you did, so on.
- Speaker 2: Yeah, so, um, my mom was in the Air Force, and so I grew up at the base, um, so I was always there and I was always surrounded by airplanes.
- Speaker 1: Yeah.
- Speaker 2: I never really thought about flying, though, um, I always figured I would go into the Air Force and follow my mom's footsteps, but for the longest time I wanted to be a physical therapist.
- Speaker 1: Okay.
- Speaker 2: Um, but I was in middle school, I think when we flew over to Hawaii, just me and my mom, um, and we took one of their C-5s.
- Speaker 1: Oh yeah.
- Speaker 2: Um, and if you know anything about-
- Speaker 1: Sit up front or in the back? Probably in the back.
- Speaker 2: Um, we sat in the back, yeah.
- Speaker 1: (Laughs)
- Speaker 2: And if you know anything about the C-5s, they break.
- Speaker 1: Oh, yeah.
- Speaker 2: Everywhere.
- Speaker 1: Especially in, especially in places like Hawaii. (Laughs)

- Speaker 2: Oh yeah, oh yeah. So, we got stuck in Hawaii, but my mom had to be back because she's only, like, one of three airfield managers. Um, so, we had to hop on a KC-135 to get back.
- Speaker 1: Okay. That's cool.
- Speaker 2: Um, so we were flying back and I think we were over like California, and the boom operator, um, like the boom is what they refuel with?
- Speaker 1: Yeah.
- Speaker 2: He said, "Hey, do you wanna, like, come see the boom?" And I was like, "Sure!"
- Speaker 1: Yeah!
- Speaker 2: Like I'm not doing anything else.
- Speaker 1: Right.
- Speaker 2: So, I went back and it's like a glass bubble.
- Speaker 1: I've been there.
- Speaker 2: On the underneath of the airplane. And I laid down.
- Speaker 2: But so, I played with the boom and then pretty much after that, I was hooked. It was, you know, night time over California, I got to see everything, clear sky. I was hooked, and so, um, my mom, uh, for my 15th birthday let me go up-
- Speaker 2: Um, but, I was pretty much hooked. And so on my 15th birthday, my mom let me go up with one of her pilots in a Cessna 172 and then after that it's just always been I wanted to be a pilot. Um, y'know, I grew up around pilots and what I was telling you earlier, um, Mike, he was a huge influence in my life, um, from the time that I can remember. Family vacations together, everything. Um, and he's a pilot for Delta and so ever since, like, I've known that I wanted to be a pilot, it's been, like, "Okay, like, what would Mike do?" Like I wanna get to where Mike is right now because he was such, like, an influence in my life, I wanted to be like, just like him. Um, so, that's been a lot of, like, my driving factor is like talking to him and him helping me, um, get to where I wanna be.
- Speaker 1: Yeah. Okay, so now, obviously we're talking about underrepresented, so ...
- Speaker 2: Mm-hmm (affirmative)
- Speaker 1: Um, well, what ... So what influenced you to go to pursue the career through a collegiate aviation program? Obviously lots of ways to do that.

- Speaker 2: Um, so, I talked to a lot of my mom's pilots about, like, what they did, because, um, to become, y'know, anything in aviation, you have to have a degree. Um, and my big thing was I didn't wanna have a degree that I didn't use.
- Speaker 1: Yeah.
- Speaker 2: I didn't want to waste my parent's money, and I didn't wanna waste my time.
- Speaker 1: You didn't wanna major in philosophy, then?
- Speaker 2: Exactly.
- Speaker 1: Okay.
- Speaker 2: Like it's a waste of money, a waste of my time if I wanna be flying.
- Speaker 1: Yep.
- Speaker 2: Um, so, a lot of them went to Falcon, and so they talked to me about that. Um, a few of 'em went to Auburn, talked to me about that. Few went to Delta State, um, so those are the schools that, like, I went and toured, um. I thought Falcon was the best fit for me. Um, it was just the right amount of distance from home to where I didn't have to go home all the time, but I could if I wanted to.
- Speaker 1: Yeah.
- Speaker 2: Best finances and stuff like that. And then, plus, I was just way too busy in high school for me to even think about flying.
- Speaker 1: Yeah.
- Speaker 2: So, um, I just waited until I came here to make sure that I was getting a good quality, um, instruction.
- Speaker 1: Okay. Yeah, good. Um, I don't think I even asked you this yet. What is it that you wanna do?
- Speaker 2: Um, I want to fly internationally for Delta.
- Speaker 1: Oh, okay.
- Speaker 2: That's the main dream.
- Speaker 1: So, you're gonna go like a Delta regional and then ...
- Speaker 2: Mm-hmm (affirmative)

- Speaker 1: Fleet up to Delta.
- Speaker 2: Hopefully, Endeavor. Regional, I'm more concerned about, like, reserve time and upgrade time, then I am about, like, pay or if it feeds into what ...
- Speaker 1: Yeah.
- Speaker 2: Um, because-
- Speaker 1: Right.
- Speaker 2: Like, I'm going to fly.
- Speaker 1: Right.
- Speaker 2: Like, I'm not going to sit and wait for six months for training and then sit on reserve for another six months.
- Speaker 1: Yeah.
- Speaker 2: Like, I wanna go to fly.
- Speaker 1: Yeah.
- Speaker 2: So, it doesn't matter where I'm flying as long as I'm flying.
- Speaker 1: Yeah. Yeah, there's uh ... Boy, there's a lot of choices for, for you guys these days.
- Speaker 2: Yeah.
- Speaker 1: It's like do I go on the pathway? Now, you're in their timeline.
- Speaker 2: Mm-hmm (affirmative)
- Speaker 1: Or do I go to some other regional, get my hours, and then get hired directly into the ...
- Speaker 2: Yeah.
- Speaker 1: Left seat of Delta, or right seat of Delta.
- Speaker 2: And see that's, like, that's kinda what I'm hoping for 'cause I have friends that I've seen, like, go through here and they, like one of my friends, he wanted to go to Piedmont, um, because, like, that's where his dad went and now his dad's a captain for JetBlue and that's where he wants to be eventually.
- Speaker 1: Okay.

- Speaker 2: But he's been sitting waiting for a class date for six months.
- Speaker 1: For Piedmont?
- Speaker 2: Mm-hmm (affirmative) And it's like, yeah, you're getting paid, but you're not flying.
- Speaker 1: Yeah.
- Speaker 2: And I just wanna be flying. I don't care where it is. Obviously, the endgame is Delta-
- Speaker 1: Yep.
- Speaker 2: But right now it's fly to get those hours to get to Delta.
- Speaker 1: So now, um, okay, so for you, so going through this whole thing of getting interested in flying and, okay, pilot career and all that, did you ever, uh, at any point of that did you ever consider that, yeah, you're a female going into this white male dominated industry. Did you ever think about that, or did you know it when you're going through it? Was there a point where you go-
- Speaker 2: Yeah ... I mean, I knew it, but it wasn't really anything different for me because, like, I was on the drum line and I did a bunch of, like, male-dominated clubs and that's just kinda always how I've been.
- Speaker 1: Yeah.
- Speaker 2: Um, so, I was like, okay.
- Speaker 1: It's just another thing.
- Speaker 2: Another thing, like what's the big deal. 'Cause I was on the drum line for seven and a half years and I was one of three girls, that was the most that we had. So, it wasn't a huge deal for me. Um, and then also when I was talking to people about going to school, everyone was like, "Oh, it'll be so great for you, the industry's great right now and you're a girl, it'll be so much easier for you." Um ...
- Speaker 1: So, what'd you think of that? When they said things like that?
- Speaker 2: I get it, and you know, it's not something that I can deny. It is easier for women to get interviews. It just is.
- Speaker 1: Yeah.
- Speaker 2: Y'know, companies wanna seem like they're being fair and they're an equal opportunity employer, and I get that. But I think early on because I was told that, I established this mentality that I don't ever wanna be told that it was easy for me because I was a girl.

- Speaker 1: Mm-hmm (affirmative)
- Speaker 2: I work harder than probably 95% of the people here because I do know it'll be easier for me to get an interview. I don't want anyone to be able to say that, "You got hired because you're a girl." Like I work incredibly hard, obviously.
- Speaker 1: Yeah, right.
- Speaker 2: I've gotten all of my ratings. I got my CFI the year to the day that I soloed.
- Speaker 1: Wow.
- Speaker 2: Year to the day. So, I work incredibly hard because I know it's gonna be easier for me ...
- Speaker 1: Mm-hmm (affirmative)
- Speaker 2: And I don't think it's, like, fair. But if I do get hired, I don't want anyone to be able to say that I got hired because I'm a girl. I wanna say, "Okay, get in the airplane with me. Like, see what I know."
- Speaker 1: Yeah.
- Speaker 2: "Tell me I'm not a competent pilot." Y'know? So that's kinda the mentality that I took on whenever, like, I was kinda going through because I knew that I would face opposition.
- Speaker 1: So, do you think that was, was that your, I mean obviously, that was a motivator to work harder. Was that your biggest motivator? I mean, you decided that because you didn't wanna be called out ...
- Speaker 2: Yeah. I mean, I wouldn't say it's like my biggest motivator. Um, I'm just ... I'm an extremely competitive person, anyway, and I wanna be the best at everything that I, like, I'm doing. Um, so yeah, it was a motivator to work harder to make sure that I can prove myself in the airplane ...
- Speaker 1: Yeah.
- Speaker 2: Um, but I think that's just like my personality and who I am, like I always want to be proving myself. I always want to be the best that I can be, like, if I have a great flight one day, I want it to be even better the next day and that's just kind of my personality. So, it wasn't like a, it wasn't like a huge difference for me to say, "Okay, like, I have to work hard because I have to prove myself in the airplane." Um, it was just kinda something that I was used to doing, anyway.
- Speaker 1: So, do you feel like you ha- you have to, you're always thinking about, "I have to prove myself as being capable because I'm a girl?"
- Speaker 2: Um ... Not all the time. Um, around here, the guys are really, really good-

- Speaker 1: Mm-hmm (affirmative)
- Speaker 2: About, "Okay, like, you're a girl. Whatever, that doesn't make any difference."
- Speaker 1: Yeah, right.
- Speaker 2: Sometimes there are times that I'm like, "Okay," like, "I'm gonna have to prove myself because I am a girl." Um, but typically it's not very common here that that happens because, y'know, I'll always have it in the back of my mind because I want it to drive me.
- Speaker 1: Mm-hmm (affirmative)
- Speaker 2: Um, but the guys here are really good about, uh, they just look at me and they're like, "Okay, it's Speaker 2-"
- Speaker 1: Yeah, right.
- Speaker 2: Like, "She's just one of us, she doesn't get anything, like, easier or not."
- Speaker 1: Yeah.
- Speaker 2: And I think it's because of, like, the mentality that we have. Y'know, like we do have a good bit of girls here, so they don't really think it's a lot different.
- Speaker 1: Yeah.
- Speaker 2: There are some that, y'know, um, have that mentality, but most of the time, they're just like, "Okay. It's Speaker 2."
- Speaker 1: Okay. So, you, I mean, you're very, um, I mean, it's kind of a common theme already that, um, the girls that are in aviation kind of have a similar attitude. They're ... That's what they wanna do, they don't care.
- Speaker 2: Mm-hmm (affirmative)
- Speaker 1: I mean, they know that they're one of the few girls, it doesn't matter, but, uh, so the issue is they're still only less than 4% of airline pilots are female. About 10% in collegiate aviation, and this has been consistent despite all of the efforts that have been going to attract more females. So why is it that more females do not want ... And one thing kinda sunk in and hit me was someone said something that I should've known and realized, but when they said it it kinda hit me. Y'know, you think, well, females don't wanna get into being an airline pilot because of the lifestyle, y'know you're gone all the time, y'know family, and then this person said, "Well, what about flight attendants?"
- Speaker 2: Mm-hmm (affirmative)
- Speaker 1: It's the same schedule.

- Speaker 2: Yeah.
- Speaker 1: And so why is it that, why do you think that more girls don't wanna get into it, or don't get into becoming pilots? I mean, they go flight attendants. There's many more flight attendants than pilots.
- Speaker 2: Honestly, I don't really know. Y'know? Like, I've always thought because, like, I hear it. They're like, "Oh, well like, what are you gonna do if, like, you want a family?"
- Speaker 2: I'm like, "My mom was in the military."
- Speaker 1: Yeah, right.
- Speaker 2: Like, I can still have a family. I remember when my mom, after 9/11, was in Germany for a month and home for a month for three years. Like, I'm okay. Like, I can do that with my kids.
- Speaker 1: Yeah.
- Speaker 2: But I really don't know. I think maybe it's maybe monetary, maybe parents' influence, y'know, becoming a pilot isn't that popular of a career choice, anyway.
- Speaker 1: Yeah.
- Speaker 2: So, I mean, 'cause I mean I'm thinking we had, like, 300 people apply for labs, so the pro pilot program's only about, like, 300 people that are still applying for labs.
- Speaker 1: Mm-hmm (affirmative) Yeah.
- Speaker 2: Obviously, there's probably like another 200, 300 that have, like, finished everything.
- Speaker 1: Yeah.
- Speaker 2: But it's not a huge program, so I think it is kinda proportional to the fact that the program is a good bit smaller.
- Speaker 1: Mm-hmm (affirmative)
- Speaker 2: Um, y'know, like I wish I, like, did know the answer, but I dunno. Maybe it's just when you're growing up, typically, like, unless you're involved in aviation, no one has the, "Oh, I wanna be a pilot." Like, if you ask anyone in this hallway, almost everyone has some aviation background from when they were growing up.
- Speaker 1: Yeah.
- Speaker 2: Um, so I don't, I don't really know.

- Speaker 1: Okay. Yeah, I mean, this is kinda like a new question for me is, you just said it, and it's like maybe people ... Or if a girl says, "I wanna be a pilot." The question is, "Well, what about having a family?"
- Speaker 2: Mm-hmm (affirmative)
- Speaker 1: But is that same question asked of someone that says, "I wanna be a flight attendant?" Is that, do they ever get that question?
- Speaker 2: I feel like they probably do. I don't really know a lot of flight attendants-
- Speaker 1: Yeah.
- Speaker 2: But, like, y'know the stereotypical flight attendant that you see in movies isn't married, doesn't have kids-
- Speaker 1: Right.
- Speaker 2: Just wants to travel.
- Speaker 1: Yeah, you do it while you're young, having fun.
- Speaker 2: Exactly, like they do it while they're young. So, I really don't know. Like, if I knew some flight attendants, maybe I'd be able to answer that, but I really don't know any.
- Speaker 1: Yeah. That's interesting 'cause, um, y'know, if you think about the stereotypical, uh, y'know, your vision of a pilot, it's from way back in the movies where it's the dashing male in the uniform.
- Speaker 2: Mm-hmm (affirmative)
- Speaker 1: And then the flight attendant is the young, twenty-something female that's not married. But you get on an airplane and you're on a plane in the United States
- Speaker 2: And it's not like that anymore.
- Speaker 1: Y'know.
- Speaker 2: Yeah.
- Speaker 1: You got this old guy in the cockpit.
- Speaker 2: Mm-hmm (affirmative)
- Speaker 1: And you got, y'know, flight attendants that are, y'know, they're not in their twenties, they're in their, y'know, thirties, forties, fifties.

- Speaker 2: Thirties. Yeah.
- Speaker 1: Sixties, even. So, uh, so it's, yeah, it's kinda interesting how these images are still in our, in our heads. Alright, um, what else were you gonna say?
- Speaker 2: It might also be, like, just thinking about it. I think women typically are a lot harder on themselves than guys are. Um, they're a lot, like, more critical and so obviously less confident. Like, women across the board are ten times more likely to be less confident than men are, just because, y'know, we do face so many pressures of, "You have to be perfect, you have to have the right hair, the right clothes." So, maybe that plays into effect about them, they may wanna be a pilot, but it's like, "Could I do that?" Y'know, like, could I be good enough to do that? Um, 'cause I face that, like when I was first coming through, I was like, is this right for me? And like, am I gonna be good at this? Like, am I gonna, like, make a fool of myself? So, maybe that could be in effect. I dunno.
- Speaker 1: Yeah. Have you read all the research on this?
- Speaker 2: Mm-mm (negative)
- Speaker 1: I mean, like, you're quoting from research studies. (Laughs)
- Speaker 2: Oh, well, I'm just, like, thinking about, I haven't, like, read research, but I'm, like, thinking about, like, my experiences and it's like women are always less confident than men. Always.
- Speaker 1: Yeah. Yeah.
- Speaker 2: 'Cause they just face so many pressures. Like you see the girls and it's always talking about, y'know, like, the perfect magazines and how much pressures we face, so I feel like girls are way less likely to have the confidence to go through this than the guys are. 'Cause guys'll walk down and they're just like, "I got this." Like, y'know, "It's me."
- Speaker 1: Yeah. Yeah.
- Speaker 2: But girls are typically not that confident.
- Speaker 1: Yeah, I mean, I mean I'll tell you that's kinda how I was. There was nobody in any of our families that are in the military or were pilots, except for my dad's uncle, and he took us out for a flight when I was in fifth grade, and that may've been what kinda sparked it.
- Speaker 2: Mm-hmm (affirmative)
- Speaker 1: But for some reason, I got in my head, I don't even know why, that I was gonna be an Air Force pilot.
- Speaker 2: Yeah.

- Speaker 1: And so I went to college on an ROTC scholarship because I wanted go in the Air Force, I'm gonna go in the ROTC.
- Speaker 2: Yeah.
- Speaker 1: And I was just gonna be an Air Force pilot. So, back then, I couldn't, I wouldn't, I don- I wasn't smart enough to know, introspective enough to know, that yeah, I'm so confident, I'm gonna do this. It's just, "I'm gonna do this."
- Speaker 2: Yeah.
- Speaker 1: And I wasn't a good student, but it's like-
- Speaker 2: It was just something.
- Speaker 1: It doesn't matter. I'm gonna get there, it doesn't matter, y'know, I don't have to ... In fact, y'know, it wasn't I gotta work hard to get there, I was just, "I'm gonna get there."
- Speaker 2: Mm-hmm (affirmative)
- Speaker 1: And I had no plan B. So, I was an aeronautical and astronautical engineering major.
- Speaker 2: Oh my goodness.
- Speaker 1: Only because I needed a science engineering degree for my ROTC scholarship-
- Speaker 2: Mm-hmm (affirmative)
- Speaker 1: And I just picked that because it sounded like aviation.
- Speaker 2: Mm-hmm (affirmative)
- Speaker 1: I didn't wanna be an engineer.
- Speaker 2: Yeah.
- Speaker 1: (Laughs) So, so yeah, I guess the, what you're saying is true. I would never have doubted that I was not gonna be an Air Force pilot, even though I didn't work hard for it.
- Speaker 2: And I mean, if you think about, y'know, like, seeing studies, when it, like, y'know, you-everyone knows, like, the studies about how women, like, mature faster and so they're more rational and they're always thinking, "Okay, what's a backup plan? Like, can I do this?" And I mean in college aviation, we are at that milestone from like what I've seen, it's like, y'know, from this age range. Like, girls are, like, five years ahead of the dudes.
- Speaker 1: Yeah, yeah.

- Speaker 2: And so maybe that could be in effect. I don't really know, but I just feel like, y'know, from my personal experiences and from what I've seen growing up, like, that could probably definitely be a factor about, "Am I good enough to do this? Like, what's my backup plan gonna be?"
- Speaker 1: Yeah.
- Speaker 2: 'Cause it is a lot of money to just throw at it.
- Speaker 1: Yeah, that's true. Yeah. I didn't pay for the flight stuff, the, I didn't fly 'til senior year when the Air Force puts you through the screening program.
- Speaker 2: Yeah.
- Speaker 1: I got my private pilot, but yeah, but like you said, um, I had no backup plan. There was no plan B.
- Speaker 2: Yeah. (Laughs)
- Speaker 1: I was just gonna do this and that was it.
- Speaker 2: See-
- Speaker 1: And maybe that's just the way guys think, I dunno. (Laughs)
- Speaker 2: And I'm already thinking, like, I'm already thinking, "Lemme get my Masters, here's my backup plan, this is what I'm gonna do if I ever lose a medical." And the guys, I'm like, "So, what are you gonna do if you ever lose a medical?"
- Speaker 2: And they're like, "I'm not ... gonna lose a medical." (Laughs)
- Speaker 1: (Laughs)
- Speaker 2: I'm like, "But what if it happens?"
- Speaker 1: Right.
- Speaker 2: And they're just like, "I, I don't know."
- Speaker 2: And I'm like, "Okay, well, do we wanna think about this ..." Like, what else are you gonna do?
- Speaker 1: (Laughs) Yeah, right. Yep, that's funny. Um, so, kinda getting into, um, kinda what you're doing here is ... Well, I'll preface a little bit here again to, when you're doing a study, um, usually it's based on some theory, um, a theory or theories, and um, this is based on social cognitive career theory. And so you kinda recognize it as I explain it. Social cognitive career theory looks at, um, how young people, um, become interested in

careers, y'know, make decisions to pursue a certain career, um, how they prepare for the careers, y'know, their academic performance and all that, and then how they perform in their careers.

Speaker 2: Mm-hmm (affirmative)

Speaker 1: And, um, it also looks at kinda how underprivileged, y'know, get into careers. So, why do some people from certain backgrounds, y'know, they don't even think about certain careers.

Speaker 1: And then the other one is ... Oh, and social cognitive career theory is based on three primary factors. One is social cognitive, which is kinda like your personality, the way you learn, um, something called "self-efficacy." Have you ever heard that term?

Speaker 2: Hmmm ... Mm-mm (negative)

Speaker 1: Yeah, it's, it ... I- I didn't until I started getting into this, but self-efficacy is basically talking about, um, if the level of confidence you have to complete, or to achieve a desired outcome.

Speaker 2: Mm-hmm (affirmative)

Speaker 1: Which is just what we were talking about.

Speaker 2: Yeah.

Speaker 1: So, people with high self-efficacy, and it's domain specific, which means, it's not like, "Oh, I have high self-efficacy." They'd say, "Well, for what?" Y'know ...

Speaker 2: Yeah.

Speaker 1: Y'know, if you have high self-efficacy for algebra, y'know, you have a high level of confidence that you're gonna be able to figure out an algebra problem or whatever, fix a car, fly an airplane. Um, and so that can determine how you become interested in a career, it kinda goes hand-in-hand. Um, is that you, like you said, if you have high confidence that you can do it, then you may be more inclined to pursue that career.

Speaker 2: Mm-hmm (affirmative)

Speaker 1: If you don't, then it's like, "I can't do that."

Speaker 2: Yeah.

Speaker 1: And ... Now the second factor is personal characteristics, which includes, which is what I'm looking at, is y'know, it's who you are physically, y'know, gender, race, y'know, other types of physical characteristics.

- Speaker 1: Um, and then the third one is, uh, the environment and that includes things like, um, well, basically where you came from, your society, economic status, y'know, your family supports, y'know, who supports you, who doesn't support you, and things like that.
- Speaker 1: So, all the questions are based on the theories. The second theory is critical theory, which looks at how, uh, minority groups or oppressed people or underprivileged people achieve self-determination and then, y'know, and I could go into a whole bunch of German philosophy on that.
- Speaker 2: Yeah.
- Speaker 1: But basically, anything from kind of Marxist, um, kinda the one hand-
- Speaker 2: Mm-hmm (affirmative)
- Speaker 1: To where groups how they kinda rise up and, y'know, kinda, uh, become more dominant. To kinda more modern, which is, y'know, underprivileged groups are, y'know, a minority group, y'know, how they fit into society and how they achieve self-determination.
- Speaker 1: So, um, getting into that. So, what's it like to be a student here? A lot of these questions are gonna sound redundant to you-
- Speaker 2: Mm-hmm (affirmative)
- Speaker 1: But y'know maybe just kinda think of stories, y'know, stories is kinda the best way to delve into what you're thinking-
- Speaker 2: Yeah.
- Speaker 1: And y'know, what you perceive. So, what's it like to be a student in your program? Kinda like your daily, weekly, student life. Um, typical day, stressful day, y'know, all that stuff?
- Speaker 2: So, I wanna say it's like, y'know, I think it's just like any college career. Um, except we're flying airplanes. Um, I kinda think it's similar to like a, y'know, like a nursing career-
- Speaker 1: Yeah.
- Speaker 2: Um, or my roommate, she's in speech pathology and she's starting clinicals. So, she'll go to clinicals and I go to the airport and go fly.
- Speaker 1: Yeah.
- Speaker 2: And she works with kids about their speech.
- Speaker 1: Yeah.

- Speaker 2: Um, but typically, a day in my life, I'll get up and I'll either go to class or come to the airport. Um, I, when I was going through my flight training, I was doing four to five meetings a week, so it was get up, go to the airport, y'know, do my ground lesson or go do my flight. Go to class, study, study some more, eat dinner.
- Speaker 1: Yeah.
- Speaker 2: Study some more, and then get up and do it all over again. Um, I think there's probably not an extended period of time that I've ever not been at the airport. Like I'm at the airport at least two to three times a week, even if I'm not flying.
- Speaker 1: Yeah, yeah.
- Speaker 2: Like even when I was like done with my commercial and it was like November 17, like, I was still here because it's just weird not to be here. It's like my second home.
- Speaker 1: Yeah.
- Speaker 2: I joke with people when I'm giving tours, I'm like, "You're gonna be at the airport more than you are, like, at your home." When I wanna study, I come here because I'm like I can walk out of this door and go and say, "Hey, like, what is this? Can you explain this to me?" And then walk back in and get all my stuff done.
- Speaker 1: Yeah.
- Speaker 2: So, I dunno, I think it's pretty typical. It is stressful, um, because we do have, like, stage checks throughout and it never fails, it's always your stage checks fall right when all of your tests are.
- Speaker 1: Of course! (Laughs)
- Speaker 2: Um, and then, of course there's always, like, finals, you know. We just had, um, written tests were due. And y'know, typically most college students wait 'til the last minute.
- Speaker 1: Wait, wait 'til the last minute. Still have time!
- Speaker 2: So, you're studying for your written and your stage check and your finals. Um, so, you definitely have to prioritize.
- Speaker 1: Yeah.
- Speaker 2: I learned that the hard way. Um, after my, like, private, 'cause I was in physics, and laws and regs, and speech, and um, a couple of other classes while doing my Pro One and all my stage checks and my first written. Um, so you definitely have to prioritize, but I don't think it's too stressful.
- Speaker 1: Yeah.

- Speaker 2: I think it's just normal college experience except for we fly planes instead of going to labs.
- Speaker 1: Yeah.
- Speaker 2: So.
- Speaker 1: Yeah, so I've heard from many people that our students are called the cool kids on campus 'cause they fly airplanes.
- Speaker 2: Mm-hmm (affirmative) Yeah. Once you get, like, close with all of the aviation people, all you see is whenever the sun's rising and sun setting, all you see is airplane pictures, like pictures of the wings. (Laugh)
- Speaker 1: Yeah.
- Speaker 2: And people look at me, like I'm in a sorority, and they're like, "You fly planes?" And I'm like, "Yeah," and they're like, "That's so cool!"
- Speaker 2: And I was like, "It's just what I do!" Y'know, it's just normal for me.
- Speaker 1: Yeah. So, that's, that's a good point. I mean, do you get, uh, from your sorority sisters, do you get kinda anybody like disbelief or questions that if you're a girl and you can fly planes, or are we pretty much beyond all that.
- Speaker 2: Not typically. I think they're all just like amazed at like, "Whoa. You fly airplanes." Um, I dunno, a lot of 'em were like, didn't even know that Central offered that.
- Speaker 1: Yeah.
- Speaker 2: Um, so they're really great about supporting me and, like, being here for me. They'll try to help me study, they don't know anything about planes, but they'll try to help me study.
- Speaker 1: Yeah.
- Speaker 2: Um, I get a lot of, "Whoa, I could never do that!"
- Speaker 1: Yeah.
- Speaker 2: And I was like, "Yeah, you could! Like, it's not that hard!" I tell people you could teach a monkey to fly a plane. Like, as long as you have common sense and can multitask, you can fly a plane. Um, but they're really great about it.
- Speaker 1: Yeah. Okay, um, are there any ... Can you think of any, like, from your time here, situations, incidents, events, or people that, that in the experience that really have stood out for you and made a huge impression of, y'know, I dunno, uh, kinda

encouraging or maybe even cause you to question what you're doing? I dunno, something, anything significant that it's like this is a seminal moment or just, y'know, remember always.

Speaker 2: Um, so, I guess I can think of, like, two people that've like really, really encouraged me.

Speaker 1: Yeah.

Speaker 2: He was my Theory of Flight and he was my Pro One professor. Um, and y'know, I was just coming to college and he taught at the Air Force school how, like, flew fighters, taught how to flew fighters, went to different universities, so I just thought he was, like, the coolest person ever. And he would tell us stories all the time in class, and he would, like, teach us, but he took the teaching approach to, "You're only gonna learn, like, what you want to learn."

Speaker 1: Yeah.

Speaker 2: And he was like, "It's not on me." He was like, "I can be here to help you." Um, so I really like that and I really respected him for that.

Speaker 1: Mm-hmm (affirmative)

Speaker 2: Because I wanted to do well in his class because I knew he wanted us to do well.

Speaker 1: Yeah.

Speaker 2: But it was also, like, on us. So, it definitely made me have to work harder, 'cause even in AP classes in high school, like, I didn't really have to work that hard.

Speaker 1: Yeah.

Speaker 2: But this is a completely different beast. There's a lot that you have to know and it really made me, like, step up and really, like, start studying and really know my stuff because he kinda took that approach that was like, "Your career is on you." He was like, "Your career starts now."

Speaker 1: Yeah.

Speaker 2: And he was like, "It's going to be what you put into it," and it really, like, hit home with me. So, I definitely, like, started studying a lot and I think it was a great transition, like, from high school to college.

Speaker 1: Yeah.

Speaker 2: Um, and I learned a lot from him. Like a lot. Um, and then my instructor. I had the same instructor for my private and my instrument. Um, and he was phenomenal. Um, like, I

can still, like, when we were doing, like, mock-lessons in our CFI class and stuff like that, like, I can still remember specific lessons with him and exactly how he handled it.

Speaker 1: Yeah.

Speaker 2: And exactly what he did in the airplane, and like, how I'm going to use that with my students.

Speaker 1: Yeah.

Speaker 2: Like I remember an instance, it was incredibly hot. I could not get my short field and my soft field landings at all. I was pouring in sweat 'cause those Diamonds are just heat death-traps in the summer.

Speaker 1: Yeah.

Speaker 2: They get so hot. I was pouring in sweat, I was so frustrated, I couldn't get it. Had my sunglasses on, I was, like, almost to the point of tears because I was so mad at myself, and he just, like, took the controls and was like, "Look, we're just gonna, like, calm down for a second, we're gonna fly." He was like, "We're gonna go do something that you love to do and then we're gonna come back to it, and I know that you're gonna get it." Um, and so, I think that, like, really helped-

Speaker 1: Yeah.

Speaker 2: And so I know how to handle to that, like, with my students and he definitely combated my "I'm not good enough," like, "I can't do this," like, "I can't get this," like, "I'm never gonna do it."

Speaker 2: And he was like, "No, like, you're gonna be great, like you're gonna be fine." And he would take me and we'd go do steep turns, 'cause I love to do steep turns, and we'd come back and then I'd get it.

Speaker 1: Yeah.

Speaker 2: Um, so it was really nice because all throughout my private and my instrument he was there. Whenever I was doubting myself, he believed in me. And so, it was really nice-

Speaker 1: Mm-hmm (affirmative)

Speaker 2: 'Cause I definitely think that helped get me through my training.

Speaker 1: Well, yeah, I mean, you made a good point. Um, I dunno if you realize, but as a new instructor, so when I was in college, um, I went to a large state university, University of Illinois.

Speaker 2: Mm-hmm (affirmative)

- Speaker 1: And, um, I don't remember the name of a single professor in my, my four years there. And y'know, just kind of a, that's who I was. I was in engineering. Um, so I had a flight instructor for private pilot, that's all I did while I was there, Joe Diamond.
- Speaker 2: Mm-hmm (affirmative)
- Speaker 1: And exactly like you said, I remember, it's the law of primacy, y'know, I remember, and because flying is such a, a big event in itself, when the first time you learn to fly.
- Speaker 2: Yeah.
- Speaker 1: So, I remember almost every lesson, his expressions, the way he taught, and this is like, this is in 1980.
- Speaker 2: I remember it.
- Speaker 1: 1980
- Speaker 2: Forever, I think.
- Speaker 1: So, yeah, so that's the ... So, when you, as an instructor, that, what an awesome responsibility.
- Speaker 2: Yeah.
- Speaker 1: It's awesome in many ways.
- Speaker 2: Mm-hmm (affirmative)
- Speaker 1: Y'know, the, that, uh, that your student will ... You're, you're their first instructor, they will remember everything you say for the rest of their lives.
- Speaker 1: Isn't that amazing?
- Speaker 2: Yeah. I still remembered everything that was a year ago.
- Speaker 1: Yeah.
- Speaker 2: I can remember sitting in one of the classroom in the other building and we were talking about hypoxia and hyperventilation.
- Speaker 1: Yeah.
- Speaker 2: And he was doing the demonstration of hyperventilation and I just remember it.
- Speaker 1: Oh, yeah.

- Speaker 2: I remember it all.
- Speaker 1: Yep. Breathe!
- Speaker 2: (Laughs)
- Speaker 1: Okay, uh, so self-efficacy. So, like I said, some of these will sound redundant, but how much confidence do you have in your ability to complete this program and continue your career desires? Um, do you have any experiences you feel that have kinda increased that confidence, y'know, either positive or negative, have affected your confidence or your level of confidence?
- Speaker 2: Um, so I definitely, now. think (laughs) I have confidence to go on and get through the regionals and get through the majors.
- Speaker 1: Yeah.
- Speaker 2: When I was going through my flight training, not so much. Um, of course, like, every stage check I passed I was like, "Okay, like, I really do know this." But you know, it's just so much information and it's just like, "Uh, I don't know anything!"
- Speaker 1: Yeah.
- Speaker 2: I was going through my CFI and I think that was a huge turning factor for me. Um, 'cause I was going through my CFI and I was like, "There is no way I'm ever gonna be a CFI." I was like, "I don't know anything, there's too much information." I was like, "How did I get through my flight training this far?"
- Speaker 1: Yeah, right.
- Speaker 2: And then I got into my check ride and I just knew everything that he was asking me, and I was amazing myself and I was like, "What's going on right now?" Like, I studied, I probably slept, like, three hours a night from the time I started my CFI until my check ride.
- Speaker 1: Yeah.
- Speaker 2: And then, like, when I got through, he was like, "Okay, like, I'm gonna give you a second, um, to like get out your lessons plan." He was like, "I wanna challenge you because you seem like an incredibly smart woman."
- Speaker 1: Mm-hmm (affirmative)
- Speaker 2: And I was like, "Aw, thanks!"
- Speaker 2: And then I was like, "Oh, gosh, no! Please don't challenge me!" (Laughs)

- Speaker 1: Yeah.
- Speaker 2: And he wanted me to teach him the electrical system, and I was like, "Okay ..." And I was like, "Oh, gosh, let me think, let me think," and I taught him and he asked me questions and I knew it. And I didn't think I knew it at all, but y'know, I got through it and once I passed my CFI, it was like, "Wow. I actually am a pilot. Like, I actually do know things."
- Speaker 1: Yeah, right.
- Speaker 2: Um, I think that was a huge turning factor for me. But definitely when I was going through my training, I always doubted myself, like, every stage check that I had. I was like, "Oh, gosh." I was like, "I don't know anything at all." Just 'cause there's so much information.
- Speaker 1: Yeah.
- Speaker 2: So much.
- Speaker 1: Yeah.
- Speaker 2: Um ...
- Speaker 1: And you know you're in a career where you're never gonna stop studying.
- Speaker 2: Ever. Ever. Like, everything's always changing, there's always something new.
- Speaker 1: Yeah.
- Speaker 2: Um, but I definitely think CFI really, like, benefited me and made me, like, a confident pilot.
- Speaker 1: Yeah.
- Speaker 2: Like I would always say, I was like, "Yeah! I can do that!" And in the back of my head, I was like, "Can I really?"
- Speaker 1: Yeah.
- Speaker 2: But now, I definitely think I can.
- Speaker 1: Okay. Well, that's really good. Um, has there been time or times that, um, y'know, going through this program that, again, that kinda hit you that, hey, you're one of the minority or underrepresented students? You're going into a career that you're gonna be the only one, perhaps, in a training class that's a girl? Or ...

- Speaker 2: Yeah. Um, so in my private class, there were a couple girls, and then in my instrument class there were a couple girls. And then I got into my commercial class and I was the only girl. And I, like, came in and I sat down, and I knew everybody, but I was like looking around and was like where are all my other, like, friends?
- Speaker 1: Yeah. My homies.
- Speaker 2: Like, where did my girls go? (Laughs)
- Speaker 1: (Laughs)
- Speaker 2: I'm the only one in here. And then in CFI, that, like, really hit because I am the only girl in CFI.
- Speaker 1: Mm-hmm (affirmative)
- Speaker 2: And I was just looking around and I was like, "Oh my goodness." Like, "I really am one of the only girls." Um, but it's never been like a huge shocking realization that I am one of the only girls, just because, I mean, you do have a good bit of girls here.
- Speaker 1: Yeah.
- Speaker 2: So, there's, I wanna say there's probably six or seven that are behind me in the program.
- Speaker 1: Mm-hmm (affirmative)
- Speaker 2: And there are six or seven that are in front of me in the program, so there are a good bit. 'Cause we are a pretty small program.
- Speaker 1: Yeah. So, I mean, the way you, you're talking about, how many girls there are and, y'know, you're looking for your girls and all that. So, do you find, is that a source of your support are those other girls because they're girls?
- Speaker 2: Um, yeah, most definitely. We definitely have a group message of all the girls in aviation. (Laughs) Just that way, like, we can stick together because, y'know, it's college, people talk, they're always drama, especially at the flight school because we're all around each other like 24/7.
- Speaker 1: Yeah.
- Speaker 2: So, any time, like, anything happens, the girls are always there. We kinda, like, band together because we're like, "Okay. Like, we have to have each other's backs because we are all girls." And whatever people like to say, boys are ten times worse about drama than girls are. So much worse. And so the girls, we just stick together. Um, so yeah, I definitely think we stick together just because (laughs) we're girls. Um, but it's nice to have.

- Speaker 1: Yeah, so, again, nothing to do with this, but so I've been at Liberty for five years now, so I've seen a whole cycle of freshmen to graduation to flight instructor, y'know, going off to the airlines, which is really neat to watch someone come in and go all the way through.
- Speaker 2: Mm-hmm (affirmative)
- Speaker 1: I'm joking about this, but if I could establish a rule that our students are not allowed to date until senior year ... (Laughs)
- Speaker 2: (Laughs) We're really good about that! We say, like, "Uh-uh." Like, especially in the flight program, all of us are like, "No, not happening."
- Speaker 1: Wow, that's, that's pretty good. You got quite a group there because, yeah, the drama between, like, who's dating who ...
- Speaker 2: It's so bad!
- Speaker 1: And ...
- Speaker 2: And then the boys get mad and ...
- Speaker 1: Yep.
- Speaker 2: Then if the boys hear a girl say anything that remotely can be misconstrued, it gets misconstrued, and it's just a lot.
- Speaker 1: (Laughs)
- Speaker 2: They like to talk. People say girls are so bad about drama, but no. (Laughs) The boys are much worse. Much, much worse.
- Speaker 1: Yep, yep. That's, uh, that's really something. Um, yeah. Sometimes I think we're too much, we get to be too much like parents, uh, in the school. 'Cause we're a really close school and, uh, and I think we get to be too much like parents. Like, almost like the professors and others are like helicopter parents to our students. In other words, we just need to, like, leave 'em, let 'em work it out.
- Speaker 2: Like, let it go.
- Speaker 1: They'll work it out.
- Speaker 2: It's kinda nice, though, because I mean, I have a professor that I'm really close with. She's not in the pro pilot program, but I'm president of our Women in Aviation, and she's my advisor, and I'm super-close with her. So, any time, like, I have problems, I go and I talk to her and she offers advice.

- Speaker 1: Yeah.
- Speaker 2: And she goes out, like, with other students, and it's really nice, 'cause I mean, I'm four hours from home and I don't have my mom here.
- Speaker 1: Yeah.
- Speaker 2: So, it's nice to have someone there to, like, help. Um, it definitely has its downsides sometimes, um, because like everyone is in everyone's business.
- Speaker 1: Yeah.
- Speaker 2: But then it's also kinda nice because it's like a family.
- Speaker 1: Yeah.
- Speaker 2: It really is.
- Speaker 1: Yeah, it's been fun. Um, so did you, do you ever, did you ever think, or, I mean ... You maybe didn't know at the time, or were there any kinda barriers that you encountered to going into this career? Like I said in the beginning, I think a lot of the barriers have been, y'know, there's an intention to remove barriers to women and minorities.
- Speaker 2: Mm-hmm (affirmative)
- Speaker 1: But, y'know, it's, y'know, there's a lot of history to this. Have you encountered any barriers or anything like that to, and how did you cope if you did? Or how successful were you? Maybe you haven't.
- Speaker 2: I wanna say I've never, like, faced any barriers that other people put in place for me, um. I've faced barriers, like, within myself.
- Speaker 1: Yeah.
- Speaker 2: Um, I definitely went through a period when I was like, "Oh, my gosh. Like, is this really what I wanna do? Do I always wanna be traveling? Do, like, I wanna be away from my kids all the time when I eventually have kids?"
- Speaker 1: Yeah.
- Speaker 2: Um, y'know, I was like, "What if I go and I end up not being any good, and I waste all of my parents' money?" Um, I definitely went through that a lot. But I talked to my mom, I talked to my dad, and they were like, "Look. You've wanted to be a pilot since you were 15 years old."
- Speaker 1: Mm-hmm (affirmative)

- Speaker 2: They were like, "I don't think it's changed by now. You love flying." And they're like, "Just go and try. Like, if you don't like it after private pilot, then it'll be fine." But of course, I fell in love with it. Like I go three days without flying and I'm like, "I need to get in an airplane." But I definitely struggled, like, before I came because I was afraid because it was so expensive-
- Speaker 1: Mm-hmm (affirmative)
- Speaker 2: That I would fail and it would be, like, rough on my parents. Um, but I kinda just like had to believe in myself and, like, trust my parents, and know that, like, they weren't gonna be upset with me if I decided that this wasn't what I wanted to do.
- Speaker 1: Yeah.
- Speaker 2: But, like, my mom, she was like a huge factor and she was like, "Speaker 2," she was like, "You're gonna do great and I know that this is what you wanna do." She was like, "I believe in you."
- Speaker 2: And then I said, "Well, like, what about kids?"
- Speaker 2: And she said, "What about- well, what about 'em?"
- Speaker 1: (Laughs)
- Speaker 2: And then she brought up the fact that, like, me and my brother were fine and my dad drove over the road for Yellow truck-driving business and my mom was gone for a month at a time for three years, and me and my brother are just fine. And she was like, "Look how it positively affected you." 'Cause it, I mean, it made me grow up.
- Speaker 1: Mm-hmm (affirmative)
- Speaker 2: I was five years old, but it really made me grow up and, like, be super independent and stuff like that.
- Speaker 1: Yeah.
- Speaker 2: So, she kinda made me look at it from that aspect. And I was like, "Okay, yeah." And obviously I'm here, so
- Speaker 1: How- is your brother older or younger?
- Speaker 2: Mm-hmm (affirmative) Um, he is going to be 26 in July.
- Speaker 1: So, what's he do?
- Speaker 2: Um, he is a mechanical engineer.

- Speaker 1: Okay.
- Speaker 2: He went to school for aerospace engineering, but when he was in school, NASA's funding got cut.
- Speaker 1: Mm-hmm (affirmative)
- Speaker 2: So, when NASA's funding got cut, aerospace engineers weren't really needed. Um, like they are, but the jobs for them are few and far between.
- Speaker 1: Yeah. It's kinda like a specialty of mechanical engineering, is what it is.
- Speaker 2: Yeah. So, he just transferred to mechanical engineering so he had a better chance.
- Speaker 1: Yeah. Yeah, my son is law is, he's a mechanical engineer, but he's actually working with, um, NASA projects.
- Speaker 2: That's cool.
- Speaker 1: So, yeah, it's like, yeah, aerospace is kinda like a specialty.
- Speaker 2: Yeah. It's really hard to get into 'cause he wanted to work for Boeing.
- Speaker 1: Okay.
- Speaker 2: Um, but, like, to get into Boeing you have to have experience.
- Speaker 1: Oh, yeah.
- Speaker 2: And it's, like, really hard to get experience. So, he's just mechanical.
- Speaker 1: Okay. Well, cool. Um, let's see, uh ... So, again. Any, any, can you think of any particular events or situations or person or experience that made you, kind of highlighted, that-your awareness of that you are, uh, an underrepresented, y'know, a female in a male-dominated, you're going into this male-dominated industry. I mean, you said a lot of things already, but
- Speaker 2: Um, there's not really, like, been an event that just, like, kinda like stuck out to me.
- Speaker 1: Yeah.
- Speaker 2: It's always kinda been known, like I've always known I'm not gonna be very, y'know, surrounded by women.
- Speaker 1: Yeah.
- Speaker 2: Um, I knew that I was gonna be underrepresented from the start.

- Speaker 1: Yeah.
- Speaker 2: Um, so it was never a big shock or surprise to me.
- Speaker 1: Yeah, it sounds like from what you said, y'know, kinda maybe a combination of in high school you were in organizations where you were ...
- Speaker 2: Yeah.
- Speaker 1: Underrepresented. Your mom was in the military.
- Speaker 2: So she's underrepresented.
- Speaker 1: So she was, I mean, so you kinda grew up that way.
- Speaker 2: Yeah.
- Speaker 1: So, it's like, yeah
- Speaker 2: Not a big deal to me. I'd rather be around guys than girls, anyways, so ... (Laughs)
- Speaker 1: Okay. Alright, um, let's see ... Uh So, what else, what, anything else that's helped you to be successful? Additional resources, uh, that you've kind of leaned on or used to help you succeed?
- Speaker 2: I like to read a lot. Um, so, I've liked read through the PHAK, I've read through the Jeppesen Commercial Instrument book ...
- Speaker 1: You are a geek! (Laughs)
- Speaker 2: (Laughs) Um, reading is like what helps, like, solidify things to me.
- Speaker 1: Yeah.
- Speaker 2: Um, so I read through the PHAK when I was going through my CFI training, um, 'cause I knew that that was gonna be, like, the best thing-
- Speaker 1: Yeah.
- Speaker 2: To help me, so I just read it cover to cover.
- Speaker 1: Yeah.
- Speaker 2: Um, just 'cause that helped solidify everything to me. Um, other than that, I guess it was just, like, the training that we've done here.
- Speaker 1: Yeah.

- Speaker 2: Um, y'know, having to do the stage checks, like private you have stage one, two, three, and an end-of-course, and in instrument, you have one, two, and three, and an end-of-course. Um, for commercial, you just have two strage checks and an end-of course.
- Speaker 1: Mm-hmm (affirmative)
- Speaker 2: So, I think that definitely helps a lot, um, in solidifying everything that you've learned because you have to know it. (Laughs)
- Speaker 1: Yeah, right.
- Speaker 2: There's no forgetting it. And I did my training so quickly that I didn't have time to, like, dump it. Y'know, like I was always using it.
- Speaker 1: Yeah.
- Speaker 2: Um, so I didn't have time to just learn and dump it. Um, I just had to use it the entire time, so ... And then CFI, of course, makes you learn anything and everything. So, that really solidified knowledge.
- Speaker 1: Yeah. I always tell our new CFIs that we hire that, just like, private pilot license is a license to learn how to be a pilot.
- Speaker 2: Yeah.
- Speaker 1: CFI license is a license to now really learn how to be an instructor.
- Speaker 2: Yeah.
- Speaker 1: I mean, you have all the knowledge for an instructor, but now you're actually gonna start learning how to be an instructor.
- Speaker 2: Yeah. And you're always learning.
- Speaker 1: Yeah.
- Speaker 2: Always.
- Speaker 1: Um ... So, you're gonna, so you got this tremendous goal to be a Delta Airlines long range pilot. So, is, would you say that's your source of positive outcome expectations is just envisioning that or are there other sources of this positive outcome expectation of what you wanna do?
- Speaker 2: Um, I wouldn't say like that is, like, my main positive outlook. Um, I'd be happy anywhere. Um, obviously, I know things are gonna change.
- Speaker 1: Oh, yeah!

- Speaker 2: Um, I may end up at American or United, um, or JetBlue, or Southwest ...
- Speaker 1: Yeah.
- Speaker 2: But I mean, as long as I'm happy. As long as I'm flying.
- Speaker 1: Yeah.
- Speaker 2: It's ... As long as I'm flying. I go, like I said, I go through days without flying and I'm like, "I need to get in an airplane." Just, it's what I love to do. I couldn't imagine doing anything else. Obviously, yeah, I wanna work for Delta. Yeah, I wanna be an international pilot for them, but if I was doing just like normal across the US flying for anyone, I'd be happy.
- Speaker 1: Yeah. Well, that's cool. Um, y'know, we, y'know, the fact that you have a, kind of a goal that you wanna achieve and that gives you something to strive for and work for-
- Speaker 2: Mm-hmm (affirmative)
- Speaker 1: But you recognize that you may not, it may not be that that you end up doing. But you also realize that everything that you're doing to get to that is really preparing you for what that is gonna be. Y'know, it could be something else.
- Speaker 2: Mm-hmm (affirmative)
- Speaker 1: And so yeah, uh, that's a really good, uh, really good healthy attitude to have.
- Speaker 2: Yeah. I mean, I try to keep it that way, just 'cause I know nothing's ever set in stone. Y'know, I could find out that, y'know, I don't really care for Delta's company policies or something like that. I doubt that's gonna happen, 'cause I've done a ton of research. But, um, anything could happen.
- Speaker 1: Yeah. Yeah, one of our, uh, graduates, I mean, his story is, uh, it's a great story. I mean, sad in some respects, but very, well, it's not really sad. I mean, 'cause you look at the outcome. So, at the end of his ... So, his dream for his whole life was to be a Delta pilot. I think it was, or maybe it was United. It was United, to be a United pilot. And so, uh, at the end of his sophomore year, he was in a water-skiing accident and his ski hit his head and it was pretty, he got injured pretty severely. And so he came back to school, his head was all, like, stitched up and everything.
- Speaker 2: Right.
- Speaker 1: But basically, he lost his medical, he couldn't get a medical. He was done. It was not gonna happen. Y'know, they tried everything. He was so devastated, and so, uh, y'know, at that time, the only ... We're a young school and the only, the only degree we had was a, like, a pro pilot or UAS degree. We didn't have our, we have an administration degree now, like management, uh, maintenance degree. So, we didn't have anything for him. He had to leave the school of aeronautics.

- Speaker 2: Oh
- Speaker 1: He did not wanna leave the school of aeronautics. (Laughs)
- Speaker 2: That's so sad.
- Speaker 1: But he knew we had been already planning for this new degree, the management type degree, and, uh, he says, "So, when are you gonna get ..." Y'know, he was, like, pestering us. "When is that gonna ..." Y'know, and he'd say, "What classes?" So, he went to the business school and he said, "What classes should I take so that I, when this thing goes live, I can just jump back?"
- Speaker 2: He can just transfer back.
- Speaker 1: So, we're telling him, "Okay, we think we're gonna have these classes and these classes," 'cause we're kinda in the process of building it at that point. And so he went through his junior year, our administration degree went live in the beginning of his senior year. He was the first and only student in the degree. (Laughs)
- Speaker 2: Oh ...
- Speaker 1: He was our first graduate of the, of the administration degree.
- Speaker 2: That's cool.
- Speaker 1: He, he didn't achieve his dream of working for United, but he's now working for American and he absolutely loves it.
- Speaker 2: Oh, that's good!
- Speaker 1: And he's just ... Yeah, I mean, he's working for American Airlines. Y'know, he's not flying, but yeah.
- Speaker 2: Yeah.
- Speaker 1: So, he worked hard, he's, y'know, he's still in aviation doing what he wants to do. Um, so how do you find, uh, it's kinda like this how he did that. How do you find joy, comfort, or support in your, in your school environment, in this stressful environment?
- Speaker 2: Um, I definitely-
- Speaker 1: Sounds like getting in an airplane. (Laughs)
- Speaker 2: Yeah. Getting in an airplane definitely helps. Um, I also, like, rely a lot on my friends, like, in the program. Uh, there were four guys that I was super close to through CFI and every single night they were sitting at my kitchen table helping me study, sleeping on

my couch when they were too tired to drive home. Um, so, like, the support that I get from my friends in the program is definitely a lot.

Speaker 1: Yeah.

Speaker 2: And then also the support that we get from management. Um, Professor, he is, like, responsible for all the CFI training-

Speaker 1: Mm-hmm (affirmative)

Speaker 2: And, like, if you're doing, like, a good job he'll be like, "Hey, you're doing a phenomenal job." Like, y'know, they definitely make sure that, like, you know when you're doing a good job and they, like, commend you for it. Um, and I think that's, like, really nice, 'cause we also have a CFI class on campus, um, and like Mr., who's our chief flight instructor, he teaches it. Um, and, y'know, it's just nice, like, knowing that, like, they're all there supporting for us and like rooting for us. 'Cause they want us to do well.

Speaker 1: Yeah, yeah.

Speaker 2: Um, so that's really nice, but I wanna say, like, the huge thing, other than getting in an airplane, um, is definitely the guys that, like, help me study and are there for me, um, so that's really nice.

Speaker 1: Yeah.

Speaker 2: 'Cause it is like a family.

Speaker 1: Yep, that's pretty common theme there for the, y'know, your support comes from your, kinda like the, from your friend group or your fellow peers and the, and the professors when you've got good professors. Um, okay, any other thoughts stand out for you or any, anything else significant that kinda stands out, um, being who you are in this, this, your slice of the world here to, I mean, preparing to be a pilot in a collegiate program, it's a huge thing. I mean, you can-

Speaker 2: Yeah.

Speaker 1: Prepare to be a doctor, a lawyer, I mean, a lot of other things, too. Nursing, it's ...

Speaker 2: Yeah.

Speaker 1: It's pretty awesome.

Speaker 2: I dunno, I mean, like nothing really stands out, y'know, everyone says, like, "Oh, that's so cool!"

Speaker 1: Yeah.

- Speaker 2: But it's just an everyday thing for me.
- Speaker 1: That's what you do [crosstalk 00:57:08] (Laughs)
- Speaker 2: It's just like what I'm doing, y'know.
- Speaker 1: Yeah.
- Speaker 2: I grew up around airplanes, so it's not anything different for me.
- Speaker 1: Yeah.
- Speaker 2: Um, and no, I don't really think, like, anything just, like, stands out.
- Speaker 1: Okay, so challenge you a little bit here, um ...
- Speaker 2: Okay.
- Speaker 1: But I don't think I, it will challenge you, actually.
- Speaker 2: (Laughs)
- Speaker 1: Do you think males behave differently when training females than when training males? So, now you're gonna be, going to be this instructor.
- Speaker 2: I think it really depends on the situation.
- Speaker 1: Okay.
- Speaker 2: Um, so I know like for me, personally, when I get mad, I cry. Like, when I get super-frustrated for myself, I just can't help it, I hate it, but I do.
- Speaker 1: Yeah.
- Speaker 2: Um, I wore sunglasses, my instructor never realized that I was crying in the airplane when I was frustrated with myself, but one time, like, I did tell him. Like he, 'cause someone was talking about how they were on the stage check and this kid started crying and they didn't know what to do.
- Speaker 1: Yeah.
- Speaker 2: Um, and he was like, "I've never made Speaker 2 cry." And I was like, "Well, I mean, you directly, no, but me being mad at myself, I've cried."
- Speaker 2: And he was like, "Wait, like what?" And then he would always, like, check over at me, 'cause he didn't wanna hurt my feelings, y'know. Um, and then, y'know, like if they're sensitive, I think guys don't really know how to, like, handle it because it's like they don't

wanna hurt their feelings. 'Cause they can look at a dude and be like, "Buck up!" But, like, the girls they're like, "Can I say that? Like, I don't wanna upset her more." Um, and then there are ...

Speaker 1: If my student was a girl and would start crying, I-

Speaker 2: Yeah.

Speaker 1: I mean, I'm a little beyond that now because I have daughters, but ...

Speaker 2: 'Cause it's just- Yeah, it's just I mean, like, guys, y'know, it's like no one ever wants to see a girl cry and I feel like guys, like-

Speaker 1: 'Cause guys wanna take care of it. They wanna solve the problem.

Speaker 2: Exactly. Um, so I guess that's probably one thing. And another thing, it's just kinda funny because I find it funny. Um, we have, like, y'know, acronyms and everything like that and there's one that, um, for VOR checks. Um, that acronym is BADVAG. And my instructor he was like, "Okay, like, I'm sorry, like, if this offends you, but, like, this is the only acronym that I know and I don't know how to make it work another way."

Speaker 2: And I was like (laughs), "That doesn't offend me." But some other, um, guys say that they don't use that acronym because they're like, "I'm afraid I'm gonna offend her."

Speaker 2: And I was like, "It's an acronym. You didn't make it up."

Speaker 1: What is the acronym?

Speaker 2: BADVAG. So, like, bench airborne duel, um, VOT, airway, and ground.

Speaker 1: BADVAG. Okay.

Speaker 2: Yeah. So, that's just like a funny thing that, like, sticks out in my mind.

Speaker 1: Okay.

Speaker 2: That guys are like, "I don't, like, wanna, like, offend or, like ..."

Speaker 2: And I was like, "You didn't make up the acronym."

Speaker 1: Yeah.

Speaker 2: Like, it's fine! So, but other than that, the only thing that, like, I've ever heard anyone talk about is, like, if somebody, like, was upset or crying, they didn't know, like, how to, like, be stern because they didn't wanna, like, upset them.

Speaker 1: Okay.

- Speaker 2: But that's really the only thing that I've encountered.
- Speaker 1: Okay.
- Speaker 2: Or heard guys talk about.
- Speaker 1: I mean, if you reflected on this, do you think you would ... It ... Uh ... I mean, every student you're gonna approach where that student's at.
- Speaker 2: Yeah.
- Speaker 1: Do you see yourself instructing girls and guys differently based on them being girls and guys?
- Speaker 2: I feel like, of course, like, I haven't instructed, so I don't know.
- Speaker 1: Yeah. I know, but just kinda thinking about it.
- Speaker 2: But, I feel like I might have to instruct guys a little bit differently, because depending on the guy, it could, I've heard where there've issues have arisen because the guy didn't respect their instructor because they were female.
- Speaker 1: Mm-hmm (affirmative)
- Speaker 2: Um, so I feel like that might be a factor, um, but of course, I'm gonna start out with you're a person, I'm a person. Doesn't matter if you're male, doesn't matter if you're female, I'm gonna treat you the same way that I would wanna be treated as a student. Um, but there have been some instances where we've had, um, some students that in their culture, it just wasn't a culture that respected women, and so there was an issue with that.
- Speaker 1: Oh yeah.
- Speaker 2: Um, but I also know that, like, I can approach management and be like, "Hey, this is what's going on," and they'll help me.
- Speaker 1: Yeah.
- Speaker 2: Um, but it shouldn't really be a problem anymore. I haven't heard of it happening in a really long time.
- Speaker 1: Yeah.
- Speaker 2: Um, and I hope it never happens to me, um, but I would definitely just approach-
- Speaker 2: Um, but I personally am, you're a person, I'm a person, we're all people.

- Speaker 1: Yeah.
- Speaker 2: Let's get the job done.
- Speaker 1: Yeah, if you make your male student cry, you're gonna know what to do.
- Speaker 2: (Laughs) Yeah, I'm gonna be like, "Oh, I felt really bad now."
- Speaker 1: (Laughs) Buck up. Yeah, alright, um, how 'bout ... I mean, this is kinda beyond the scope of this one, but it's, uh, it's kinda in the study. Well, actually, well you talked about it, um, but if you're instructing, do you think you'd, how would you approach like a racial, y'know, like, Hispanic or African American guy or girl? Would you see anything different from your perspective?
- Speaker 2: I wouldn't see anything different, no. Um, I don't really see anything different, like, any people that I see.
- Speaker 1: Yeah.
- Speaker 2: Like, I grew up in an extremely, extremely diverse school. Like, my school had foreign exchange students from India.
- Speaker 1: Yeah.
- Speaker 2: And we had, like, every continent we had at least one person from. Um, I don't know why, it's was South Haven High School in Mississippi, but we just did.
- Speaker 1: Yeah.
- Speaker 2: So, for me, it's just, y'know, people are people, so I don't see anything different with it. Um, and I'll just, but, yeah ... I would say ...
- Speaker 1: Yeah, I think, I mean, I can understand that fully. Um, y'know, part of it may be a generational thing, but, and maybe it's for me, y'know, I want to see them succeed so much that maybe I overcompensate or over-help them.
- Speaker 2: Yeah, um, I could see that, like, coming into play because I do, like, want people to succeed. But I would say, like, I would want all of my students to succeed-
- Speaker 1: Yeah, right.
- Speaker 2: Like the equal amount. Um, I definitely, like, have the mentality where I'm gonna come in first day and like, have, like, the mentality, be like, "Look, I'm here, but, like, this is your career and this is, like, on you. Like, I can only help you so much, and if you're working and you're struggling, like, I will be more than happy to help you." No matter who they are. Obviously, I want all of my students to succeed, um, but yeah, I don't

really think, like, I would say I want you to succeed just because, like, you're a woman, um, or, like, you're a minority.

Speaker 1: Yeah.

Speaker 2: It just, people are people to me.

Speaker 1: Yep. Okay. Um, so, uh, I already kinda got into this, but do you think, uh, I mean, just your own personal thoughts, you think, attitudes about gender or race in aviation vary among generations? I mean, it may sound like an obvious question, but y'know maybe, y'know, your generation, you grew up with that more diversity.

Speaker 2: Mm-hmm (affirmative)

Speaker 1: And ...

Speaker 2: I think with generation, yeah, it does vary. Um, but I feel like, y'know, in our generation what I see a lot is it's also about, like, your upbringing.

Speaker 1: Mm-hmm (affirmative)

Speaker 2: Um, y'know, I was taught that people are people. Y'know, with my mom being in the Air Force, she's traveled the world and-

Speaker 1: Yeah.

Speaker 2: Like, we know people from all over and it's, people are people. Um, that's just kinda how I was raised. Um, that's not always the case, especially even in this generation. Y'know, like, even in my generation, I still see racism because of how people were raised.

Speaker 1: Mm-hmm (affirmative)

Speaker 2: So, I think that definitely plays a fact into things, um ... Um ... And especially, like, when it comes to, like, women and y'know we're, like, around here we're in the Bible Belt, so there's still the stigma of you should be a stay-at-home mom and you should, like, raise the children and stuff like that. 'Cause that's just kind of how people have been raised around here. Um, but a lot of people have, like, overcome that and I think it's just generational thing.

Speaker 1: Yeah.

Speaker 2: Um, but then, you also still have people even though they're in our generation, they still revert to, like, what they've been taught and it's like an upbringing.

Speaker 1: Yeah.

- Speaker 2: Um, because, like, I know people that are generations above me that have the mentality of people like in my generation now that are like super open-minded and willing to, y'know, go with the flow about a lot of different things, just because that's how they were raised.
- Speaker 1: Yeah.
- Speaker 2: Um, y'know, obviously it's not as popular in generations above us, um, 'cause most of the time, they're a little bit more conservative. Um, but I would say overview, yeah, it's definitely a generational thing. Um, but then you also have to get into it's not always that way. It's a lot about upbringing and how you're brought up.
- Speaker 1: Yeah. Okay, that's good. That's really good. Um, let's see ... This is more of a thought question, this is kinda the end here of what I've got and see if you have anything else, but more of a thought question that I, these, these last ... These are the ones, my original ones here.
- Speaker 2: Mm-hmm (affirmative)
- Speaker 1: These are kinda like after my week in, I was thinking about, y'know, other things. Y'know, experiences of racial discrimination or mistreatment prior to getting to college, I actually, you were just talking about that, make a difference in how a person feels about being underrepresented in the collegiate environment. So ... Yeah, so that's kinda what you're thinking is, y'know, your, how you were raised and, and your upbringing, it really what you bring into the environment, that kind of impacts how-
- Speaker 2: Yeah.
- Speaker 1: Y'know, you're impacted or you impact others and things like that. Um, let's see ... That's pretty much, uh, so any other thoughts or ...
- Speaker 2: I don't think so. Um ...
- Speaker 1: So, uh, so what does it mean to you to be an under ... I've never asked this question directly. So, the research study question-
- Speaker 2: Yeah.
- Speaker 1: Is what does it mean to be an underrepresented collegiate aviation student? And I've never actually, I just thought of this, y'know ... So, what does it mean to you? (Laughs)
- Speaker 2: I think it's definitely a complex definition, y'know? I think it means that you kinda have to be open-minded. Um, when I, y'know, hear people say, "Oh, well, they only got this far because they're a woman," I just kinda have to let it go.
- Speaker 1: Mm-hmm (affirmative)

- Speaker 2: It's not something that is worth being upset over or fighting over.
- Speaker 1: Yeah.
- Speaker 2: Because like we said, it's ... People are going to be a product of how they were brought up. Um, and I personally, I don't wanna change anybody, y'know, and it's like, "I'm sorry that you have that opinion, so I'm just gonna go over here and not be upset about it."
- Speaker 1: Yeah.
- Speaker 2: Um, so, I don't know, it's a really complex definition, y'know.
- Speaker 1: Yeah.
- Speaker 2: You have to be open-minded and you can't be sensitive. You have to work hard, um, but at the end of the day, you're just a student.
- Speaker 1: Yep. Just like everybody else.
- Speaker 2: Yeah. Y'know, it's kinda hard to, like, sum it all up into one, y'know, just definition.
- Speaker 1: Yeah.
- Speaker 2: 'Cause I mean it is, it's different for everybody. Like what does it mean and it's like, well, a lot. Y'know, at the same time, you're different from everyone else, but you're also just the same as everyone else, but that's just something that you have to remember and, but not let affect you in a negative way. Y'know, it's like, yeah, you may be under-represented, but so what?
- Speaker 1: Yeah.
- Speaker 2: You're just like everybody else, it's not gonna affect your career outcome, y'know? It's like, yeah, I may be more likely to get a job interview, but they're not gonna hire me if I'm not qualified, so it doesn't mean I can't, like, I don't need to work just as hard as everybody else.
- Speaker 1: Yeah.
- Speaker 2: Um, so I dunno. It's a really big question.
- Speaker 1: Do you ever feel like, um, I mean, do you ever kinda carry the thought that you are still leading the way, or a, uh, representing other females? That you're still a pi- I mean, really, still kind of a pioneer because of the numbers.
- Speaker 2: Yeah. Um, I do think that, y'know, women definitely represent all other women in the career. Um, and sometimes that's, it's kinda difficult, um, because say I don't know exactly how many girls we have here, but say we have 10 girls here, if two girls are just

kinda like, "Meh, I'm just here. I'm just going through," that's the mentality that everyone has about all 10 girls.

Speaker 1: Yeah. Oh, yeah.

Speaker 2: So, we definitely are pioneers and everything we do affects each other.

Speaker 1: Yeah.

Speaker 2: Um, we talk about this in our girls GroupMe all the time, and it's like, "Hey, I didn't see you were at class. Like, why weren't you at class? Like, what's going on?" Because we do always have to be on our A-game, all of us, because anything any one of us does affects the rest of us and how people think.

Speaker 1: Wow, okay.

Speaker 2: Um, unfortunately, that's just kinda how it is.

Speaker 1: Yeah.

Speaker 2: Um, but ...

Speaker 1: But you actually talk about that. That's pretty interesting.

Speaker 2: Yeah, we do. Um, 'cause like, we had like a few issues, um, and we all just kinda like sat down and we're like, "Look, this is what's going on. Like, we all have to stick together and we all have to be working just as hard as one another because everyone perceives us as the same person."

Speaker 1: Mm-hmm (affirmative)

Speaker 2: Like, they don't ... If they see two girls doing it, they're gonna assume the rest of the girls are doing it, too. It's not always the case, but most of the time.

Speaker 1: Mm-hmm (affirmative)

Speaker 2: Um, so, yeah.

Speaker 1: Wow, that's interesting. Okay. Well, that's great.

Speaker 2: Yeah, thank you.

Speaker 1: That's about it. I mean, uh, yeah. Uh, so the timing is good, I don't wanna go, definitely don't wanna go over 90 minutes.

Speaker 2: (Laughs)

APPENDIX P: REFLECTIVE MEMOS

Personal Reflections

Data Collection Phase – Documenting thoughts about

- What you are observing in the field
- Your interaction with the participants
- Your experience using the data collection process

Data Analysis Phase – documenting your thoughts about

- Data analysis process
- Coding and their respective meanings
- Relationships among codes, categories and themes

April 14, 2018

End of week at Eagle

This morning I read an article in military.com about racial bias in Navy fighter training regarding African American males. Several African American males who had been eliminated from fighter training believe they were discriminated against and treated differently and held to a different standard from their white counterparts. I can say that African Americans in the military fighter training environment are definitely operating in a unique culture that comprises being white and in the world of fighter aircraft. As a former fight pilot, I can say that there are a few people of all races and genders that have trouble conforming to the American fighter pilot culture. They either succeed or fail despite the culture. Bottom line, if you are an outstanding performer, physical characteristics and personalities are overlooked. If you are marginal or a poor performer, being quirky or a nonconformist can lead to being isolated by the group.

I believe most people would like to see others as being the same. But we are not the same. Other than obvious physical characteristics, we all come from different life narratives. In an environment where performance matters to preservation of life and to accomplishment of military or company mission, those who are seen to be different than the majority can tend to be ostracized or marginalized. In the military environment, everyone must learn support all others and to rely on all others for mission accomplishment and well-being. In the civilian flying environment in which team building happens when the crew shows for a flight, everyone must adhere to standardized procedures and behaviors to build and enhance confidence. Preconceived negative notions about someone on the team can lead to low levels of confidence that the person can live up to standards before the mission or flight even starts. Expectancy bias in this case can lead to the target person being seen as living out preconceived prophesies.

Personally, I think that I tend to want to see an underrepresented person succeed, which may lead to me over-supporting or making a bigger deal out of good performance by the person as a way of validating my personal biases that females and racial minorities are just the same or better than any white male pilot. I am always personally interested in how the underrepresented person

became interested in flying, and how they came to the point at which they are able to pursue the career.

I think that I personally see underrepresented persons behaving in a manner that helps them to fit into the majority way of behaving. Maybe they act one way when they are in the environment of majority white males, and another way when they are with those of similar or same physical characteristics and backgrounds.

Do males behave differently when training females than when training males? I think there is always the thought of inappropriate relationships when there is a male/female instructor/student mix. Females just want to be treated the same and to have the same opportunities and assessment standards. Males may be concerned with how the female interprets the male instructor's assessment. If too harsh, does that mean the male is discriminating or improperly stereotyping or judging? Is the male instructor concerned that the female may have an emotional breakdown and start crying? Is the male instructor concerned about charges of sex discrimination if the grading is too harsh?

The same may be said about race. Does the white male instructor teach or grade differently because of race? Are the standards *raised* because the instructor is "protecting the industry from someone who may be a poor performer due to stereotyped beliefs, or are the standards *lowered* due to preconceived low expectations.

Do attitudes about gender and race in aviation vary among generations? Young people entering aviation today may not have experienced direct or indirect discrimination or gender/racial bias. Females in many cases are outperforming males academically and in terms of undergraduate enrollment. Black and Hispanic males who are in aviation may have come from backgrounds that kept them from experiencing racial discrimination.

Personally, I want to see more females and races in aviation. I believe I would tend to want to help someone succeed, but that means I would tend to think they need more help to succeed because of their gender and race. Is that because they are female or of a minority race, or is it just due to them being underrepresented, i.e. they look different and may therefore behave differently.

Do experiences of racial discrimination or mistreatment prior to getting to college make a difference in how the person feels about being underrepresented in the collegiate environment? Same with if there had been no experiences of negative racial discrimination or bias?

I have two daughters. I believe they can accomplish anything they have their heart set on doing, and I support them in that. I also know that whatever career they were to choose, they could be working in a man's work environment. I perceived that when one daughter was working as an intern at the State Department. Men are often more comfortable working and discussing issues with other men. They can share men stories for instance. Some may feel they do not have to guard their speech when there are just other men around. Some may not guard their speech, but also know that they may be making the females in the room uncomfortable, and some may do that on purpose as a sort of right of passage. In other words, "if you want to be a part of the

group, then you must talk and behave like us". Men talk, men behaviors, even though both may not be a part of the professional work environment. Some men believe such behaviors are part of the professional work environment, i.e. fighter pilots.

Bottom line. Everyone should have the opportunity to choose their path in life. Physical characteristics matter in flying aircraft to a limited extent in regard to FAA regulations, i.e. medical conditions, eyesight, mobility, etc. Cognitive conditions also matter in terms of being able to learn, assess, and make decisions. Gender should not matter. Race should not matter. When you see a white male entering flight training, you do not immediately consider that the background of the person will be an inhibitor. Once you get to know him in terms of personality, motor skills, intelligence, etc. you may form opinions on likelihood of success, but the immediate face-to-face judgment is not there. I have encountered so many successful female pilots, I know that I immediately see a female as someone who will be just as likely to succeed as a male. I have not encountered as many Black men and women entering aviation.

I grew up with a father who believed that a woman's place is in the home raising the children and taking care of the husband. If a wife has a career, that just means that the husband and children would not be served as well by the wife, and that should not be.

I am accustomed to seeing female pilots, and racial minority pilots. I tend to want to encourage them and cheer them on. I guess that people who do not know much about aviation might have different thoughts when they see a female or racial minority. It does not fit their picture of what is expected or what is normal, and it can cause a short circuit reaction.

Eagle Student A post-interview reflections

The student is very confident and motivated to complete his program and continue into a pilot career. The student is less confident about having the financial means to keep going in his education and training. He appears to receive much social support with many people wanting to see him succeed.

The student does not appear to have recognized discrimination due to race or ethnicity. He is from Mexico, and he is not a U.S. citizen although he seems to be in an immigrant family. He is unclear about what he will be able to do in terms of a career, possibly due to his citizenship status. He appeared to be well known and liked around the campus. Many of the administrators and staff he saw greeted him and spoke with him. He is part of a very supportive education and training environment.

He is graduating this year, and he hopes to obtain a CFI certification, but finances appear to be an issue.

He appeared intent on telling me that he has a big focus on studying and doing well in school. He wanted me to know that he is disciplined in his studies, in his work, and taking care of his family.

The student lives at home to save money, so he does not have as much of a social connection with his fellow students. He probably feels somewhat disconnected because he is not on campus the same amount of time as others. Between flying, working and being at home with his family, he probably does not spend hang out time with fellow students.

He knows that hard work can bring good results. Sometimes, he struggles, and gets down on himself, but through various social supports, he appears to be able to bounce back. He relies on others to help him persevere and to regain his confidence. He appears to like receiving affirming talk.

He grew up in the community where the college is located. He lives with a sizable Hispanic community in the local area, probably receiving much support from that community and his family even while he is in the aviation program.

Noted that the university marketed itself to gain more international students. This increases diversity on campus, although it would not quite increase diversity in the U.S. industry. This school has many Saudi students in the program. While I can recognize them as being Saudi because I lived in Saudi Arabia, many young students may not know that they are international just by seeing them on campus.

One of his big motivators is to make his family proud of him, to succeed.

He has the drive to become a pilot.

He appeared to want to be agreeable in the conversation. He didn't want to say anything controversial, and he seemed to follow my line of reasoning and opinion each time.

People in his social group growing up did not think he would be capable of achieving his dream of becoming a pilot. Family members also doubted him, which created both negative feelings and positive motivators.

Eagle Student A Post-Transcript Review Reflections

The student is very family oriented. He wants to make his family proud and also represent his family well. He is the first college graduate in his family. He is an immigrant from Mexico, and did not have much exposure to aviation. He started his college career with a mind for business, but then he became interested in becoming a pilot. He learned the path by talking with others. He is very sociable, which has helped him to navigate the very difficult and challenging journey to becoming a pilot. Finances have always been challenging, but he worked very hard to overcome the financial barriers by working to obtain scholarships.

He generally has not felt discriminated against by virtue of being Hispanic. He operates in a very diverse environment, or at least that is how he perceives his environment. He has friends from various backgrounds. Being local to the college town, he spent most of his time with local family and friends, and only later in his college time did he seek out college social groups. He is very family oriented. He experienced great support from his family in the form of

encouragement. He also received encouragement and support from various faculty and staff members.

He does not believe he will have any issues being of Hispanic background in his aviation career. Being a minority member did not come into his thinking when he started pursuing a pilot career. He had already completed some college years prior to developing an interest in the pilot career. He is determined and very proud of his accomplishments, and at the same time he is very humble and other-person oriented. He finds joy in helping others. Like many students, he experienced stress from financial challenges and from the challenges of the rigorous pilot licensure curriculum – learning to fly aircraft.

He came from a background in which people did not typically pursue an aviation career. It was perhaps a career that he was not exposed to or that he considered because he didn't really know about it. He was not exposed to it. His interest began out of a desire for travel, a curiosity about the world from a global sense. IOWs, how can he see the world? And then from a sense of, what the world looks like from the air? And then, how do these aircraft work and how does one learn to fly them. Some people in his life may have thought he could not succeed in his pursuits, and although he experienced the negative side of those thoughts, they also served to drive him in a positive manner to prove to others that he could succeed in his dreams.

Motivators

- Family
- Desire to succeed
- Does not want to let people down who believe in him
- Love of flying – he has to do it; passion developed over time

Socioeconomic and low education background makes him humble, but drives him to succeed, to do his family proud though hard work.

Service to others. He does not have much, and he desires to help others as others have helped him.

Eagle Student A Post-Transcript Reading Reflections

Family immigrated from Mexico when he was 10. No one in the family had been to college, but he was motivated and perhaps influenced by his family to attend college to pursue a career. He had been interested in aviation having grown up in his town, but didn't think it was a career he could do, mainly because of the cost. He used sports scholarships to get to college initially, the scholarships were not enough to cover tuition so he transferred to a community college.

He didn't think about the racial make-up of the career, and didn't know until he got into the school environment that the make-up is majority white male. He just never thought about it. His focus was just on becoming a pilot as a career, because that is where his interest was.

Growing up he never considered race as being an issue. He is from the community in which his college is located, so he spent most of his college life living at home in his community. He

didn't have the same social connections that most aviation students have in their college experience. He struggled in the beginning because he did not know who to go to for advice and counsel. He quickly learned however that the people at the college are very open and helpful, and he began to find supports. At times, he was ready to quit because of struggles, and advisors at the university helped him and encouraged him to keep striving to achieve his goals. They saw in him the ability to complete the program, that he did not see at the time.

He was motivated to do well so as to not let his family down, and then to not disappoint others who began to help him along the way.

He doesn't feel underrepresented in the sense of being different. There is diversity on the campus, and he believes he fits in and interacts with everyone well. Everyone there is pursuing similar goals and have similar struggles, so they all have things in common, bonded by aviation.

The faculty and instructors treat everyone the same and support everyone in their learning and goals.

He may believe race played a minimal role in that he is from a lower socioeconomic background and aviation is not common in his background. He believes his race did not present a barrier.

He receives much support from his immediate family. He is driven by a desire to please his family. First in his family to graduate from college. He was also somewhat motivated by people who did not believe he could become a pilot.

Eagle Student B post-interview reflections

The college theme. This student wanted to get a college degree, but did not really know what she wanted to do at first. I will go to college, and I am interested in aviation as a career. Not, I want to be a pilot and I must go to college to be a pilot even though I would rather not go to college.

The program is very challenging, but very rewarding.

Love of flying is what keeps her motivating and striving to achieve her goals. She may not be totally sure of herself, but she is not afraid to step out and try new things or to push herself, now being driven by the love of flying.

She relies a lot on her aviation friends as supports and help to get through the program.

Motivators: Love for flying and the friends

-if your heart's not in it because you love it and you're just in it for the money, it's not gonna work out.

Mentioned the dynamics of having male friends. How females view having male friends and how males view having female friends.

She spoke of wanting to be friendly with male colleagues, but could be worried about how the males perceive that friendliness.

Eagle Student B Post-Transcript Review Reflections

She became interested in aviation and becoming a pilot by being around her father who worked in the FAA, and then others who worked there and were pilots. She went on flights and developed a love for flying. Her passion for flying as a pilot continued to grow, and it now drives her to achieve her goal of becoming a pilot for a career. She knew that she would probably be one of a small number of females due to being around her father's workplace, but that did not deter her desire to become a professional pilot. She has always experienced people who supported her desires and goals.

She attended a community college for two years, and then transferred to Eagle to be in a collegiate aviation program. She is a friendly, outgoing person who likes to be around people, and make friends. She spoke of being friendly with the males on campus, but was surprised that in many cases, their intentions were more along the lines of wanting to be in a boyfriend-girlfriend relationship.

Her supports for accomplishing goals are other people who support her – friends, her instructor, the chief pilot – and her passion for flying. Her female flight instructor has been a positive support and a positive role model. She feels fortunate that she has been able to retain the same flight instructor, and that they have a very good personal relationship. She has not experienced any significant barriers to achieving her goals. She loves the small campus atmosphere at Eagle and the friendliness of the campus. She sees everyone as being supportive of each other in achieving their goals. She is focused on becoming a professional pilot, and she has not experienced any gender discrimination or barriers.

Eagle Student C post-interview reflections

People get interested in flying at a young age when they see an airplane, or are around airplanes in some manner. They decide that is what they want to do.

The passion for flying develops, and then the search for a career begins. The person needs to find a way to pursue flying in a way that it becomes their desired career. Not many people can fly for a hobby.

Sometimes, the reality of life gets in the way, and the person pursues other things before coming back to aviation. Sometimes, the person changes in the type of pilot career to pursue.

He actually thought about the fact that there are not many black pilots. Many of the interviewees did not think about it or consider it. Perhaps because he was a bit older after being in the military before getting back on the pilot track.

He took notice when he saw a black airline pilot. He was happy and proud to see a black pilot. The sighting inspired him.

He finds the program challenging because you have to keep up with the academics and the flying. He says it takes dedication.

He learned to find supports in talking with other people to share experiences.

Eagle Student C Post-Transcript Review Reflections

He caught the pilot bug early, as a child, but then lost it for a bit. He joined the Army, and the interest in flying returned, but he didn't know how to go about it financially. He came to college on the GI Bill.

He didn't think about being one of a few black pilots until he started noticing that there were not many around. When he arrived at school he started looking to see if there were any black instructors or students, and he was surprised at how few there were.

His passion for flying continued to drive him although he struggled with the studies and the flying skills. He finds support in other people, and in himself.

He does not see race as being an issue, but he definitely recognizes that he will be one of the few black pilots wherever he goes. He said he is used to that, being one of a few blacks in his military units. It does not bother him, and he just deals with it.

Eagle Student D Post-Transcript Review Reflections

She was introduced to aviation through her sister who is a flight attendant with a pilot boyfriend. Once she decided to become a pilot and got started in the program, she became committed to becoming a pilot. She has no desire to do anything else, and her motivation to become a pilot drives her. She grew up in a family that did not differentiate girl activities from boy activities. Everyone was treated equally. She did not think about being one of few girls in aviation. She didn't really take notice until she was on campus in the program, but that did not bother her or distract her. She relates that people on campus are very supportive, but people in various places that are not a part of aviation find it odd and surprising to see female pilots. She related personal experiences and stories from other people. She related stories about airline passengers becoming visibly nervous at the sight of a female pilot or the sound of a female pilot's voice on the intercom. She loves flying, and she loves being in the program. She desired to have a degree and to learn through a collegiate program to become the best she can be. Although just starting out in aviation, she seems to be very confident in her ability to succeed in her career goals, and she is not at all concerned about being one of the few women. She looks forward to being one of the few.

Eagle Student E Post-Transcript Review Reflections

He came to the U.S. from a country in Africa when he was 13, but he developed an interest in becoming a pilot much younger while living in Africa. The interest stayed, but he did not think

he would have the opportunity, and he didn't know anyone who was in the career. He joined the Army, and it was at the end of his time in the Army when he learned he could use the GI Bill to go to college and get his pilot ratings.

He never considered being a minority by race in the industry. He thought about women being a minority, but he never considered his situation. Having been in Africa and in the Army, he is very accustomed to being in diverse groups. He never made a comment about feeling like a minority, especially while in aviation circles.

He is very driven and committed to becoming a pilot. He loves flying, and that is what keeps him going. Money is an issue, and the rigors of the program are an issue, but he is committed to succeeded in order to fly. He does not perceive that his experience will be different than other people due to his being Black.

Falcon Student A post-interview reflections

White female, just finished CFI training.

She very much knows what she wants to do, and she is striving to be a Delta airline pilot, although she knows things could change, and she would be happy with any type of flying career. She loves flying, and everything about being around airplanes and other people who love airplanes.

She does not think much about being a girl in aviation. She has her goals and dreams, and being an underrepresented does not matter to her. She is passionate about her goals, and she works very hard. She said she is used to being in groups and activities that have majority boys – drum line in high school.

She expressed that girls may approach new things with less confidence than guys, and that girls think things through more than guys. She thinks about back-up plans and what may happen if she cannot achieve her goal of becoming a pilot.

She finds strength in her desire to achieve her goal. She finds support from others who are able to provide effective psychological support, like her parents, certain professors, and particular flight instructors, and her friends, especially those in her flight program.

She believes it is necessary to have a college degree to be successful in her chosen career.

She spoke very confidently, and very articulately. She loves what she is doing, and she receives a lot of support. She did not mention any problems with funding.

She is very open-minded and appears to be very much a people person.

Falcon Student A Post-Transcript Review Reflections

Girls that do a lot of male dominated activities.

She was influenced a lot by her mom who was in the air force as an airfield manager. She is very independent, and has always been accustomed to being in groups and activities that are male dominated. She knew that there would not be very many girls, but she is fine with that. With that being said, she finds comfort in girl groups. She needs girl groups to regroup and destress. She is very confident in herself, and is driven by her strong love for flying.

Falcon Student B post-interview reflections

White female, CFI.

She was very self-confident in her abilities. Very positive attitude. She loves flying, and once she was hooked, flying was it. She was going to fly.

She does not think about being an underrepresented much, primarily she just thinks about being a pilot. In her growing up, she was used to being with other males, and she feels comfortable around them. She is not intimidated.

A common theme is that the students just want to fly. They don't consider much the fact that they are underrepresented by gender or race.

Falcon Student C post-interview reflections

It seems some of these kids do not realize or know that discrimination in the industry existed. If they think about, they view as an ancient history thing that does not apply to them now.

“Oh yeah, yeah, back then, I can imagine, yeah, during that period. Yeah, I can imagine.”

Family supports and encouragement is pretty common.

He's just doing his thing, working hard to achieve his dream of becoming a pilot. He is motivated by the love of airplanes, and the encouragement he gets from others, family, professors, friends and others who express that what he is doing is cool.

Just a normal college student doing the college thing.

Falcon Student D post-interview reflections

No thought given to the reality that she might be one of very few women in the career. Just wanted to fly.

Family influences can matter. Girls had parents that were very encouraging and supportive of the career interest and pursuit.

Parents grew up at a time when there were no female pilots or a lot fewer. Subtle conversations and attitudes about female pilots or lack of.

Falcon girls have a social group to talk and support each other.

She puts self-confidence at a very high level of importance.

“Cause guys are always used to playing on a teams of sports with other guys. They've never gone on a team with a girl. Really.”

Open minded backlash

“It's a really hard thing we do, and I don't think anyone would put all this work and effort into it if they didn't really love it.”

Very focused and driven to achieve her desire to become a professional pilot. Wants to experience it all. She knows that being a girl in aviation is an unusual thing and that people have different attitudes about female pilots, but that does not bother her. She knows that girls are just as capable or more so.

Falcon Student D post-transcript review reflections

She is very passionate about flying. She did not think about being one of very few girls, but took notice of that when she arrived in the program. She likes being around and with the other girls in the program. She gets support from them, and she finds them easier to talk with and to share with. She is very vocal about how guys like to disparage girls in the program.

She doesn't care about being one of the few girls. She wants to fly, and she is determined to fly. She knows she will have to deal with people who don't understand girls flying, or who don't think girls should be pilots. She knows how to put them in their place. She works very hard to ensure she can reach her goals and also to prove that she is working for her place in aviation.

Falcon Student F post-transcript review reflections

She fell in love with flying during a flight with her father at age 12. She decided at that time that she wanted to learn to fly, but never consider she could fly for a career. Her thought of flying was that it was a man's career, so she did not think it was something she could do as a career. Once she decided to go into the career, after talking with a faculty member, she noticed that she was one of the few girls.

She is more comfortable in girl relationships, but she is not afraid of the male dominated environment. She grew up in a family in which her parents encouraged her that she could do anything she wanted to do. Don't set limits or boundaries.

She loves to fly, and she is determined to make flying a career. She knows there may be discrimination, but she is not worried about holding her own. She believes she is as good or better than any other male. No one else is going to slow her down.

Falcon Student G post-transcript review reflections

Each underrepresented category can be a separate complex study because each group has multiple differences within the group. The Hispanic group is very wide in complexity. They are not as visible, and they come from many different culture types.

He is very confident in his abilities, and he achieved the role of flight instructor by his junior year. He doesn't really see himself as being significantly different than anyone else in terms of race. He sees a world of many different people and he is just one of them. He comes from Mexico and has travelled quite a bit, experiencing different cultures and people.

He noted that in the Hispanic culture, some people may be hesitant to pursue careers that take them away from the family. That may be more true for females than for males.

Hawk Student A post-interview reflections

He saw a pilot at the airport, and posed the question to himself, can I do that?

He never considered that he could not do something like become a pilot because he is Black.

His first real realization that he was one of the minority in the field was the first day of class, when he looked around and realized he was one of three Black students. Then, the other two dropped out later.

Never felt discriminated against, received much support.

He struggled in the beginning and almost quit, but support from others kept him going.

Hawk Student A post-transcript review reflections

He caught the desire for flying as a career, he and pursued it. He never considered that he would be one of very few Blacks. He was quite surprised on the first day of class to find that there were very few blacks, only one other in his class.

He struggled through Private Pilot training, and he had low confidence in himself. His confidence built up as he completed each subsequent flight rating. He did not relate any racial discrimination. He is part of a supportive and friendly learning community, and he receives support from family and his student peers.

He is not a flight instructor, and looks forward to getting to the airlines.

Hawk Student B post-transcript review reflections

Pretty low energy student. Not a high performer, but he has graduated and will begin CFI training. He also, like many others, did not think or notice that he would be one of the minority until he arrived to his first aviation course. That surprised, but he said he kind of liked it.

His goal is to fly as a pilot, and he knows he will get there one way or another. He has experienced comments related to race, but of the ignorance and awkward type.

He finds support in aviation friends and his family.

Hawk Student C post-transcript review reflections

He caught the desire to fly on a family vacation flying to Washington, and visiting the Boeing factory. He did not know that college was a route to the career, but learned that after talking with career pilots he knew.

His first realization that he was one of the few minorities was when he arrived at college. He felt a desire to do well for other racial minorities. He has a strong desire to perform well for others who invest in him.

Although he does see himself as a strong student, he is motivated to work hard to achieve his goals. He did not relate any stories of discrimination or feeling isolated because of his race. He talked about the supportive learning environment at his school.

Within the collegiate environment, aviation students are generally supportive of each other regardless of race or gender. Females probably receive more feelings of discrimination than males. It is only outside the collegiate environment that students encounter strange comments, even in aviation environments, like at other airports.

He is driven to fly. That is the passion.

Hawk Student D post-transcript review reflections

More vocal about being a black man in aviation. He wants to see more blacks in aviation, and he relates better to blacks. Better social support, they understand each other.

Personal Reflections – Data Analysis Phase

Data Collection Phase – Documenting thoughts about

- What you are observing in the field
- Your interaction with the participants
- Your experience using the data collection process

Data Analysis Phase – documenting your thoughts about

- Data analysis process
- Coding and their respective meanings
- Relationships among codes, categories and themes

Relationships

What is more meaningful and important to the students? Logical and rational thinking or relational and emotional thinking?

Older people think rationally. Younger people think relationally

Young females may think more rationally than young males

Females may be more accustomed to being in underrepresented situations, i.e. majority male environments and situations.

Some black students may not be accustomed to being in such a minority situation.

Possible themes that jump out

- Persistence, motivation, and drive. Level of confidence; development of confidence. Self-efficacy. Relational thinking/drive vs. rational thinking/drive
- Passion for flight and flying – the why; trumps everything for all generations. Interest, desires, goals, inquiry
 - o The seed gets planted, watered, fertilized, and it grows.
- Identity as an aviation student relative to who they are as an individual. How they see themselves within their setting; representative of the underrepresented group. Physical characteristics, identity
- The environment that is their world. Supports. Barriers, stresses, challenges. School environment
- Didn't know or think about being one of the few – surprised response. Not concerned about being underrepresented in the career. Taking on a representational role.

Perhaps my biases are not as strong as I thought they may be. I am not a young student pilot. I am not a member of the underrepresented. I did not go through a collegiate program other than private pilot. I am in a different generation, and I did my training in a different time.

Students find a realization that they are in the minority due to interactions with others who find it interesting that they are pilots. Others do not or cannot see them as pilots, and they find that quite interesting. Seeing how others see them may shape how they feel about themselves.

Possible theme: Their place as an underrepresented person being shaped by how others see them and respond to them

- Unbelief that they are a pilot
- Comments about them being pilots
- Got annoyed, upset

Perhaps people don't want to see themselves as being different. Even if different looking, the culture is to be a unique you in an inward sense, and outwardly we are all the same regardless of what we look like. Young people just want to fit in, so they don't want to acknowledge that they are outwardly different than anyone else. They are not looking to be an activist fighting for their rights. They just want to pursue their passion of flying aircraft, and perhaps they unconsciously disregard the fact that they are one of a very few numbers of their gender and/or race.

They know they're different, but they don't want to be seen or treated as being different, but they like being different, and they like hanging out with others like them, or they tend to protect and help each other, but they don't want to be treated differently, but they wonder how they'll be treated, or they reflect on how they are treated because they are different.

About the time that civil rights was having more effect and women and minorities were being hired into the airlines, identity politics and ideology was beginning. This was a movement by elites and radicals with their own agenda. The typical person was not involved, and the typical person who just wanted to fly did not see a connection with identity ideologies and getting to fly for a career.

No one feels like they are treated differently. The minority males seem to not want to be classified or labeled as being different or underrepresented.

Asking the questions made many of the participants, particularly the males, consider things they have probably never considered before, i.e. race and gender issues. They are all so focused on their own goal achievement, that they do not consider the struggles and fears of others.

Do young people just not want to acknowledge or think about that there may be gender or racial issue involved. It seems that the male Hispanic and Black guys do not want to acknowledge that overtly.

Free Imaginative Variation

During construction of individual textural and structural descriptions, pulled out invariant constituent statements that reflected essences of the experiences of each participant

During construction of composite structural-textural descriptions by theme, combined the recorded invariant statements

Formulated invariant statements into a combined list of Invariant Constituents by theme

Exercised free imaginative variation with the list of Invariant Constituents by theme. This process allowed me to focus on the suitability of the thematic statements.

Looking through all of the Invariant Constituents, I regrouped some of them into different themes

Regrouping and reflecting brought revised themes names to the surface

Theme 1 – passion for flying – career interest:

- Changed to: interest/love/passion for flying – filters their identity as an underrepresented
- This is a personal bias area due to my own passion for flying
- I know about passion for flying and I somewhat expected this as a theme
- I did not know what the relationship would be between the love/desire for flying and being in an underrepresented group
- Ingredients
 - o Something that influenced love for flying; interest for flying
 - o Someone to encourage or support the interest
 - o Someone to show them the way
- Initial reflective thoughts: it means –
 - o I love flying and my identity and background are not barriers or inhibitors to pursuing my dream for flying
 - o I will succeed; there is no other option
 - o Defense/offense for struggles
 - o Overcoming struggles and doubts because the passion is real
 - o Not a job

Addresses cognitive-person, personal characteristics, environment/supports, and CT

Theme 2 – relational thinking/drive verses rational thinking/drive:

- Changed to: relational thinking/drive verses rational/irrational thinking/drive – aspirations
- Rational: cost, struggles, danger, girls don't do it, black people don't fly, Hispanics don't fly, it's a white man's world
- Relational: to people; to the experience; to the dream
- Didn't realize or understand the amount of work that would be required
- Transition from interest/love to achieving goals/aspirations
- Didn't interview those who did not persist

- Initial reflective thoughts: it means – those who pursue the interest think in relational terms initially. Those who persist need relationships to persist – family members, peers, role models, flight instructors
- Relating to others of like identity – female, race

Addresses cognitive-person, personal characteristics, environment/supports, and CT

Theme 3 – Environment and career supports:

- Remained the same
- First step – interest
 - o Family
 - o Situation
- Second step – as a student
 - o Family, peers, instruction staff
 - o Monetary
 - o How they feel about their environment
- Never treated differently within the program
- Initial reflective thoughts: it means – students need supports – students seek peer support from like students

Theme 4 – It just got real – how they see themselves within their setting; representative of the underrepresented group:

- Changed to: It just got real – personal responses
- Didn't know – surprised on first day of classes
- Not aware of the past
- Likes being different – representative
- Initial reflective thoughts: it means –
 - o change of thinking, awareness, attitude;
 - o new roles – representative, role model for others, example for others
 - o need to succeed for others

Theme 5 – Why so few? Taking on a representational role:

- Changed to: the new normal – reaction of others and behavior responses
- Discrimination experiences – how they felt
- Believes it is an accepting industry
- Behavior responses – desire to fit in; need to work harder; avoid discrimination issue
- Initial reflective thoughts: it means –
 - o Dealing with comments
 - o Dealing with personal perceptions and beliefs
 - o Fitting in and striving to succeed and achieve goals

APPENDIX Q: CODES AND CODE DEFINITIONS

CODE	E-A HM	E-B WF	E-C BM	E-D WF	E-E BM	F-A WF	F-B WF	F-C BM	F-D WF	F-F WF	F-G HM	H-A BM	H-B BM	H-C BM	H-D BM	FG Hawk	Total	Definition
Personal identity	7	1	1	0	3	0	0	2	2	5	15	1	8	4	1	4	54	How the participant views himself/herself in contrast to others; origins
Interests	17	2	1	0	0	0	0	0	2	0	2	2	1	1	1	0	29	What the participant enjoys
Barriers	5	1	0	3	2	0	2	0	0	1	3	0	0	0	3	0	20	things that may inhibit an interest, goals or career
People that helped, or people supports	11	1	11	5	3	2	2	1	0	2	3	0	2	1	2	0	46	people that were mentors, advisors, role models that had an influence
family supports	8	0	5	4	3	3	4	5	0	6	2	5	0	1	1	0	47	environmental factors - family members
Resources that helped	8	0	4	0	1	0	2	0	0	0	0	1	0	0	0	0	16	scholarships, other resources that helped in enabling the pursuit of interests
Career interest development	10	10	6	5	3	2	5	4	10	3	2	4	4	6	6	0	80	developing the interest in the career - the direction; people, environment, experiences that developed the interest in aviation
Persistence	3	2	3	0	2	0	1	2	0	0	4	0	3	3	0	0	23	attribute that motivates continued action pursue an interest or achieve a goal
career goals	4	3	3	1	1	5	2	3	8	3	4	1	2	8	5	0	53	the career target; what the interest wants to achieve; what the participant wants to do in life - career oriented
environment	0	1	0	0	0	1	4	3	0	4	0	0	0	1	1	0	15	the physical space with its general feel
confidence in pursuing the career	3	0	0	0	1	0	1	0	1	0	0	1	1	1	0	0	9	something influenced the confidence to pursue
career plan	1	2	3	1	1	0	2	4	1	1	3	2	7	1	0	0	29	the plan, the steps to achieving career goals
welcoming environment	0	2	0	1	0	0	0	0	0	0	1	2	0	0	0	0	6	an environment that is welcoming to the person
inquiry	3	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	asking questions regarding an interest that may lead to the career
overcoming struggles	1	2	10	4	1	1	1	1	0	5	1	1	4	1	1	0	34	things done to work through the struggles and move forward
passion	3	9	3	0	1	4	5	4	12	0	3	9	3	10	5	0	71	deep emotional and heartfelt drive
overcoming barriers	5	1	2	1	0	0	0	0	0	0	3	0	0	0	1	0	13	things done to negate the effects of barriers and to persist
lack of knowledge of how to achieve the career goal	1	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	3	the unknown steps to achieving the career
desire to succeed for others' benefit	5	0	2	0	1	1	0	3	0	0	0	1	0	5	0	0	18	a factor that motivates persistence to achieve the goal for the purpose of benefitting others
underrepresented? Didn't know	4	1	2	1	2	0	2	2	1	1	0	2	1	2	0	0	21	There was no thought given to the fact that the participant would be underrepresented in a big way
race awareness	3	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	5	how did race shape the person's world views and development of career interest
lack of mentor or role models	4	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	5	not having someone to model or ask for advice
personal agency	3	0	3	4	0	1	5	0	0	0	0	0	0	0	0	0	16	
personal motivation	4	1	7	3	0	2	1	6	1	0	0	2	3	1	3	0	34	what's inside the person that drives the person to succeed
social relationships; social relationship supports	7	4	2	0	1	4	4	4	2	9	0	7	4	0	2	0	50	friends, friend groups, social circles; social contacts/friends that provide positive supports
struggles	2	4	7	0	0	2	1	2	1	1	0	5	5	1	3	0	34	things that cause stress or may lead to low self-confidence
lack of funds	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	not having the financial resources to keep going
believing in oneself the ups and the downs	2	2	2	1	0	0	2	1	0	0	1	0	0	0	0	0	11	self-confidence, self-efficacy; believing in oneself that through perseverance and work, the goal can be achieved
fitting in	1	0	1	0	0	0	0	0	0	0	0	0	0	2	0	0	4	lows and highs of working, achieving success, confidence
race not an issue	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	belief that he fits in as part of the social community
feelings on race or gender	4	0	5	0	2	0	0	3	0	0	4	0	0	0	0	3	21	race does not affect his place in the social community or career
diverse environment	1	0	4	0	4	15	13	5	10	12	17	0	0	0	3	9	93	how he/she feels about race or gender being an issue in the social group or career
No thought of underrepresentation	3	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	4	participant
male environment	0	1	0	0	1	0	2	2	2	3	0	2	0	0	0	1	14	knew it, but did not think about it or consider it
developing personal agency	0	6	0	4	0	0	0	0	0	0	0	0	0	0	0	0	10	female fully aware that it is a predominantly male environment
teacher supports	0	1	0	2	0	1	0	4	3	0	0	3	1	5	3	0	23	ways of developing personal agency
role model	0	7	0	2	0	3	0	0	2	3	0	0	0	0	0	0	17	teacher(s) that provided positive supports
developing self-confidence	0	6	0	0	0	1	0	0	2	0	0	1	1	0	1	0	12	person looked up to as a role model and had a positive impact
gender not an issue	4	3	4	0	0	5	2	1	5	0	0	1	0	1	0	0	26	process over time of developing self-confidence; things done and accomplished that help with confidence
no discrimination experience	0	6	0	0	0	1	4	0	0	0	0	0	0	0	0	0	11	gender does not influence thoughts about the career
lack or passion or drive	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	person has not experienced a situation of discrimination
race issue; discrimination	0	0	12	0	0	0	0	1	0	0	3	0	4	1	0	0	21	Situation in which race was an issue or was highlighted
conscience of being in the minority group	0	0	15	5	0	2	1	6	2	0	0	4	0	2	3	0	40	person knows they are or will be one of the minority in terms of race or gender
group identification with race or gender	0	0	6	0	0	11	2	6	7	12	7	3	1	4	6	1	66	how the group feels about their race or gender and what they can do or should do in the environment
Reaction due to others' response	0	0	0	10	0	0	0	0	29	12	0	0	2	0	1	0	54	Negative reaction due to others' response - race or gender
Likes being one of the few	0	0	0	3	1	2	0	1	0	0	0	0	0	0	0	0	7	
Gender/race issues that shape the experience	0	0	0	0	0	0	0	0	0	4	6	0	0	1	4	2	17	Experiences or issues encountered that are gender/race centered or driven
Totals	144	83	124	60	35	70	71	79	103	87	84	61	60	63	56	20	1200	

APPENDIX R: INVARIANT CONSTITUENTS OR HORIZONS

- I. Interest/Love/Passion for Flying – filters their identity as an underrepresented
 - a. An early experience that sparked or developed an interest
 - b. Often, an experience of the first flight in an aircraft transforms the interest into something the person loves to do
 - c. The interest may lie dormant for some years until rekindled into a desired career pursuit
 - d. Pursuing the career transforms the interest and love into a passion. The thought of flying as a career becomes a passion.
 - e. The person pursuing the career enjoys flying
 - f. Enjoys entire process of flight – being knowledgeable and being the one doing it
 - g. Enjoys it because he is working with other professionals; other aviators doing the same thing
 - h. Regarding barriers, she says they can be overcome because you are doing what you love to do
 - i. Cannot imagine doing anything else; no back-up plan
 - j. Flying is challenging and hard work, so you have to love it to do it
 - k. Because of the passion, they know they will succeed in getting there
 - l. Because it is a passion, it is not like a job
 - m. Passion filters their being an underrepresented member of the group

- II. Relational Verses Rational – aspirations
 - a. Many students begin with low confidence, and then confidence increases with successes and milestones achieved
 - b. Girls have less confidence than boys;

- c. Girls think things through more; boys are more brash and impulsive starting out with high confidence before they know what it is all about
- d. Many struggle in the beginning, but persevere because of the goal
- e. Some questioned their career choice in the midst of early struggles
- f. Keeping sight of the goal helps get through the valleys
- g. Attitudes and beliefs that girls have an easier time on evaluations because they are girls
- h. Not letting others deter you from the goal
- i. Strong reliance on social circle of other aviation students
- j. Motivation to represent other females and racial minorities – feel need to succeed for the benefit of others and to be a role model for others
- k. She still thinks it odd that there are so few females in aviation, but it does not deter her from achieving her dream
- l. Never really considered how it would be in the industry
- m. Knew they would be one of the few in the industry

III. Environment and career supports

- a. Students receive support from multiple sources – family, faculty/staff, peers
- b. Biggest support mechanism is friends/peers in the aviation program, primarily those who are also underrepresented as females or racial minorities
- c. Students are not treated any differently because of their underrepresented status
- d. Have a sense that their school has a very welcoming environment and wants to see them succeed
- e. Knew someone in aviation on a personal basis
- f. Did not identify a role model until later; or, did not know anyone in aviation

- g. He got excited when he finally saw a black CFI in his program – seeing him as an instructor helped him to believe he could get there also
- h. Comes from an aviation family
- i. Parents support career aspirations
- j. Her initial thoughts about not knowing she could be a pilot as a career may have come from what she says is subliminal programming, images of male pilots
- k. School has a family atmosphere – everyone treated equally

IV. It just got real – Didn't know – initial reactions and how they see themselves; representative of the underrepresented group

- a. Did not know or consider that they would be one of a small few in the program
- b. Surprised on the first day of classes when the realization hit them – makes them more attuned to what it may be like in the industry
- c. In the beginning he felt alone as one of a small few black students; he thought he was the only one in the program
- d. Know they will be underrepresented in the industry, but haven't really thought about it or considered what it means
- e. Like hanging with own – females, African Americans; more comfortable in female groups and she looks for the females in class to be near them
- f. Likes being one of the few – wants to represent; wants to be a role model for others; wants to prove themselves and succeed for their own family
- g. Not very aware of the discrimination problems of the past in aviation – he has been so accepted at every turn that he does not think about it

- h. Believes that more blacks or women are not in aviation because they are not exposed to it. He would like to be a part of influencing kids to get into aviation.
- i. Coming from a lower socioeconomic background, he feels the need to succeed
- j. He detected that people notice him, so he has a desire to do well to represent
- k. He is actively interested in getting more Hispanic youth into aviation

V. Why so few? Taking on a representational role

- a. Believe that the industry is accepting of females and minorities – no concerns
- b. Even though he has experienced no discrimination at his school, he expects to see it in the industry
- c. Believes that some flight instructors may be discriminatory.
- d. He is determined to focus on being his best and not worry about what others do or say.
- e. Believes there may be a perception that people from less favored backgrounds might be looked upon as not being able to achieve, and he wants to show that he can achieve by working hard.
- f. Girls told by others, including authority figures that they should not become pilots because they are a girl
- g. People who are surprised to learn that the girl is the pilot; is a black male
- h. Guys are accustomed to speaking with guys, as when they are together on sports teams
- i. Girls who are accustomed to being around males while growing up
- j. Believes that females may receive preferential hiring over male pilots
- k. Observation that females in the career tend to have dominant personalities – may be from observing female faculty at her school

- l. has not experienced any racial issues, saying that everyone in his program treats everyone the same
- m. Male instructors may treat girls differently than they treat guys, in how they talk to them
- n. Belief that their generation is more open to diversity
- o. He says that race has not been a factor on campus.
- p. Considers everyone as being the same, just doing what they are supposed to do
- q. He looks forward to sticking out in airports, taking the notice a being a good thing – he's made it, and others can live out their dreams also
- r. He believes he must work harder because he does not have many external supports like other kids may have, in his perception
- s. He anticipates there may be barriers imposed by people who discriminate, but he will not let that bother him
- t. African Americans reluctant to talk about discrimination in their environment
- u. She has been in classes as the only girl, and she says the guys sometimes forget there is a girl in the room and start doing guy talk
- v. She believes guys are condescending to girls
- w. Wondered how he would be treated as a black minority, but he found that everyone supports everyone else.
- x. Feeling of isolation
- y. He needs other blacks that he knows understand him and what he is going through
- z. Black aviator social media site that helps him to stay motivated; female aviator social media site

III. Environment and career supports																
	HA BM	EA HM	EB WF	EC BM	ED WF	EE BM	FA WF	FB WF	FC BM	FD WF	FF WF	FG HM	HB BM	HC BM	HD BM	Total
a	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	15
b	1	1	1	0	0	1	1	1	1	1	1	0	1	1	1	12
c	1	1	1	0	1	0	1	1	1	0	1	1	0	1	1	11
d	1	1	1	0	1	0	1	0	1	0	1	0	0	1	1	9
e	0	0	1	0	1	0	1	1	0	1	1	0	0	1	0	7
f	1	1	0	1	0	1	0	0	1	0	0	1	1	0	1	8
g	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	2
h	0	0	1	0	0	0	1	0	0	1	0	0	0	0	0	3
i	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	15
j	0	0	1	0	0	0	0	1	0	1	1	0	0	0	0	4
k	1	1	1	0	1	0	0	0	0	0	0	0	0	1	1	6

IV. It just got real – personal reactions																
	HA BM	EA HM	EB WF	EC BM	ED WF	EE BM	FA WF	FB WF	FC BM	FD WF	FF WF	FG HM	HB BM	HC BM	HD BM	Total
a	1	1	1	1	1	1	0	0	1	1	1	1	1	1	0	12
b	1	0	0	1	1	0	0	1	1	1	1	0	1	1	0	9
c	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	2
d	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	14
e	1	0	0	0	0	0	0	0	1	1	1	0	1	0	1	6
f	1	0	0	1	1	1	1	1	1	0	1	0	1	1	0	10
g	1	1	1	0	1	0	1	1	1	0	1	1	1	1	0	11
h	1	0	0	0	1	1	0	1	1	1	1	1	0	1	0	9
i	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
j	1	0	0	1	0	0	0	0	1	0	0	0	0	1	0	4
k	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1

V. The new normal – Behavior responses																
	HA BM	EA HM	EB WF	EC BM	ED WF	EE BM	FA WF	FB WF	FC BM	FD WF	FF WF	FG HM	HB BM	HC BM	HD BM	Total
a	0	1	1	0	0	1	1	1	1	0	1	1	1	1	1	11
b	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	2
c	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	2
d	0	1	0	1	0	1	1	1	1	1	0	1	0	0	1	9
e	1	1	0	0	0	0	0	0	1	0	0	0	0	1	0	4
f	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	2
g	0	0	0	0	1	0	0	0	0	1	1	0	1	0	1	5
h	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	2
i	0	0	0	0	1	0	1	1	0	1	1	0	0	0	0	5
j	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	2
k	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	2
l	1	1	1	0	1	1	1	0	1	0	1	1	1	1	1	12
m	0	0	0	0	0	0	1	1	0	1	1	1	0	0	0	5
n	0	0	0	0	0	0	1	1	1	1	1	1	0	0	0	6
o	1	1	0	0	1	1	1	1	1	0	0	1	1	1	1	11
p	1	1	1	0	1	1	1	1	1	1	0	1	1	1	0	12
q	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
r	1	1	0	0	0	0	0	0	1	0	0	0	0	0	1	4
s	0	0	0	0	1	0	0	1	1	1	0	0	0	0	1	5
t	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
u	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
v	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
w	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
x	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
y	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
z	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	2