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Self-Identification From The Professional And Social Perspectives Of Flight

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SELF-IDENTIFICATION FROM THE PROFESSIONAL AND SOCIAL PERSPECTIVES OF FLIGHT

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Carly Lane Crockett

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TABLE OF CONTENTS

LIST OF TABLES

KEY TERMS

General Aviation (GA) – Per the International Civil Aviation Organization (ICAO), GA encompasses "all civil aviation operations other than scheduled air services and non-scheduled air transport operations for remuneration or hire" (p.B-2). ICAO branches this into five categories: "instructional flying, business flying, pleasure flying, aerial work, and other flying" (p.B-2).

Self-Identity – How a person sees themselves – *Identity Development* – "A story of how one came to be the person one currently is." (McAdams, 2013, p.233).

Social Identity – The strength of connection a person has to a given social network – Per Walker and Lynn (2013), social identity is often evaluated on a basis of role-based relationships and societal ties (p. 152).

Professional Identity – The values and beliefs placed upon a given occupational label – In accordance with Matthews, et al. (2019), professional identity tends to be a continuous process, "influenced by several factors including experiences in practice and professional socialization" (p.1).

Belonging – Barbour and Lammers (2015) argue that "belonging" is more or less assumed, if a given construct, professional or otherwise, becomes a part of one's identity. (p.41)

Attachment – Per Barbour and Lammers (2015), attachment is stated to, "reflect individuals' perceptions of the intensity of their connection to that category" (p.41).

Primacy – A person's initial introduction to a given idea, often carries on to their overall interpretation of said idea throughout the course of their existence (Thorndike, 1927).

Maintenance – Maintenance describes an upkeep of practice, maintaining currency of action and knowledge. Curry and Dunbar (2013) note that, no matter the activity, "similarity declines with frequency of contact" (p.337)

Embeddedness – This establishes the idea of, "breadth of access that an individual's role-based group has to the rest of his or her social world" (Walker & Lynn, 2013, p.153).

Identity Salience – Salience is addressed by Walker and Lynn (2013) as, "the probability of enacting an identity in and across other situations (p.161). This same concept is defined similarly by Stryker and Burke (2000), as the "probability of behavioral choices in accord with the expectations attached to that identity" (p.286).

Commitment – In relation to self-identity, this study will use commitment as, "the presence of a stable set of goals, values, and beliefs that provide a direction, purpose, and meaning in life" (Kunnen & Metz, 2015, p. 117, as cited by Wendling & Sagas, 2022, p.3).

Credibility – Trustworthiness and reliability act as synonyms for a receivable, worthwhile message from sender to receiver (Sobel, 1985, p.557).

ABSTRACT

The development of one's identity is connected to the level of effort willing to be committed to goal achievement. Per Velleman (2006), what someone cares about, determines what they must do for survival (p.336). While identity has been dissected, the applicability of connection for social and professional ties within aviation has not been thoroughly processed. General aviation flying and that of airline pilots has been compared regarding skill and safety association, but not in identity construction. A population of airline pilots was researched, that may or may not have been actively participating GA, with attempt to establish factor recognition of identity formation via quantitative survey, and qualitative, open-ended interviews. The objective was to uncover whether a social identity in GA impacts a professional identity for airline pilots, opening doors for growth in both piloting realms. Themes were expected to emerge regarding primacy, background, and currency, that were directed by initial survey findings. Actual themes deduced through coding of qualitative interviews connected to the quantitative phase, but emphasized more strongly points of primacy, self-credibility/worth, attachment, community, and commitment.

CHAPTER 1

INTRODUCTION

When meeting a new person, it is not uncommon to start an introduction asking about careers. Perhaps we dive further, discussing hobbies or family, where we are from. What key phrases a person chooses to use as self-identification, poses a major question of why they do so. Everyone has detail, yet why one person may build their self-identity around a profession, and others center themselves around social hobby, familial structure, sexuality, etc., is a topic that has been explored for centuries. Unique to the aviation profession is the component of pride that relays to the role (Peyrat-Guillard & Grefe, 2020, p.173). Becoming an airline pilot takes immense effort, but so does the obtention of a mass variety of career achievements. Yet, airline pilots tend to develop an organizational bond, linked to their flight desires, that stands as an instant acknowledgement of what they feel describes themselves (Ashkraft, 2005, p.76). The relationship between professional pilot self-concept and recreational pilot self-concept has yet to be studied in depth. This study deconstructed two components of self-identity, professional and social, within a group of Part 121 airline pilots. An explanatory mixed methods approach was used with the goal of uncovering how strongly a social identity component impacts a professional one. Specifically targeted was the phenomenon of having a social identity as a general aviation (GA) pilot while also having a professional identity as an airline pilot. Research involved a quantitative examination of descriptive statistics and factor analysis, highlighting potential influences that an airline pilot may interact with, which draw them to the GA world

beyond profession. The qualitative portion placed attention on theme establishment via interview data. From initial quantitative investigation, focused qualitative questions were developed, producing a more purposeful product. Identity Theory was explored to expand upon previously established concepts regarding the formation of self-identity, with hopes of applying findings to the GA and airline domains.

Statement of the Problem

Essentially, the International Civil Aviation Organization (ICAO, 2009) defines GA as, "all civil aviation operations other than scheduled air services and non-scheduled air transport operations for remuneration or hire" (p.B-2). In a basic sense, ICAO branches this into five categories: "instructional flying, business flying, pleasure flying, aerial work, and other flying" (p.B-2). What is valuable to note is the "instructional flying" label for this study. No matter what path a pilot takes to obtain that primary license, their journey often begins in GA, which was of critical magnitude throughout this research.

Describing in short, who a person is, self-identity has often been depicted too broadly to conceptualize, or too briefly to use as relevant in any sort of accurate depiction of human construct (Brubaker & Cooper, 2000). McAdams (2013) described a model for identity development detailed by subjective, constructive, and evolving standards, presenting a "story of how one came to be the person one currently is." (p.233). In this respect, our careers that we build through experience, and our hobbies that we turn to for enjoyment, can tie together as two critical components of self-identity, due foundationally, to a person's commitment of time within each activity. Self-identity is multifaceted, with social and professional identity components being two major features. For this study, social identity is defined by the strength of connection a person has to a given social network. Per Walker and Lynn (2013), social identity is often

evaluated on a basis of role-based relationships and societal ties (p. 152). Professional identity is defined by the values and beliefs placed upon a given occupational label. In accordance with Matthews, et al. (2019), professional identity tends to be a continuous process, "influenced by several factors including experiences in practice and professional socialization" (p.1). As addressed by Zikik and Richardson (2015), this professional portion should be expected to develop in a potentially non-linear format as a person strives to find their favored niche (p.140). Social identity, attaching to the desires a person holds without the bounds of organizational structure, can link to a professional mold, but it does not have to (Kalin & Sambanis, 2018, p.140). For an airline pilot, a career often built through passion and dedication, it is not uncommon to see professional and social constituents of self-identity intertwine closely (Fraher & Gabriel, 2014, p.928). Yet, in relation to time existence within one practice, the professional identity that is necessary for survival, supporting means to obtain basic physiological needs, is frequently found to inhibit the more social fragments (Deci & Ryan, 2000, p.228). An issue with this idea of self-discovery, is that complexity builds when discussing levels of one identity. This leaves question as to what influences may work together to leave lasting impact.

Frequently, existing research suggests identity as an element developed primarily in adolescence (Waterman, 2015; Crocetti, et al., 2014, Eriksson, et al., 2020). Conceivably, it is the childhood fantasy that sets identification, the dream of flight that establishes a certain image of a pilot breaking past the constraints of gravity. Perhaps it is the title that comes with the label of "Captain" establishing the traits of trust and leadership (Fraher & Gabriel, 2014; Peyrat-Guillard & Grefe, 2020). The lack of potential expansion to a broader identity picture that exists beyond a given life stage highlights a deficiency that inspires research into primacy of aviation introduction. Existing research delves into social bonds, but there is not an exceptional amount

that adapts to GA communities (Walker & Lynn, 2013; Kalin & Sambanis, 2018). Studies connecting the GA and airline flight domains have mostly questioned skill, not overall homage (Boyd, et. al, 2021; Puranik & Mavris, 2017). Acknowledgement of a professional attachment is evident, where it comes from and how it associates with a social attachment is not. A major deficiency of previous self-identity inquiries is that they tend to generalize a specific career, many for example, within the medical and educational fields (Barbour & Lammers, 2015; Izadinia, 2013). This brings attention to the point of how unique the professional and social identity components can be, which created a focal point for this research in the aviation field, where more exploration would be useful. Any career arena could adapt a study that may have been successful in one domain and find different results. Different findings per career each present benefits to human understanding of self, all depending on the audience.

Purpose of the Study

Apart from military aviators, GA acts as the birthplace of flight training for all piloting pathways (ICAO, 2009). Being that participation within GA is thus expected for most pilots, retention within the practice is not as prominent. The GA community, as a population, has been shrinking since the 1980s (FAA, 2021). The professional pilot group is decreasing alongside that of its GA counterpart (Pallini, 2021). The dramatic need for professional pilots is transforming the GA training portion into a shorter ladder. This could present a conflict that would limit pilot introduction into the GA community, which could inhibit social identity formation. This creates question as to how a social identity on the GA side of the equation may influence the professional identity of an airline pilot. Both GA and airline flying require training and upkeep. There is no evidence that partaking in GA creates a more skilled pilot in the airlines, or vice versa. Yet, the essence of who a person is as a pilot due to their existence in the other domain,

has not been widely investigated. This research worked to touch on how one identity may affect another within the same person.

As revealed by previous literature, professional identity has underlying influences such as commitment, exploration, belonging, and attachment (Barbour & Lammers, 2015, p.40). Walker and Lynn (2013) emphasize factors of identity positioned on the social end of definition to be composed of similar foundations (p.152). When a professional distinction and a social connection merge to the same fundamental base, as with career and hobby aviation, these overlapping ingredients of self-construct can build upon each other, transforming the overlaying characterization (Fraher & Gabriel, 2014, p.928). In the case of piloting for career and hobby, the practice of flying is thus the root of two distinct self-identity segments. Using previous literature that depicted professional and social identities as separate pieces of self-identity, can generate ideas as to how they might enhance each other when blended (Barbour & Lammers, 2015; Kalin & Sambanis, 2018; Wendling & Saga, 2022). Presented by sociologist Sheldon Stryker in 1968, Identity Theory cements the premise that, "society impacts self impacts social behavior" (Stryker, 2008, p.20). Identity Theory alludes to a person defining themselves by the importance of a role they feel they portray in life. The societal establishment of said role can inflict saliency of a given connection. Further, who we surround ourselves with, under the canopy of this role, can induce enriched attachment if our social groups are built of role-based others committing to the same categories in which we place ourselves. Identity Theory has been used as a pathway for creation of extended branches of self-definition, such as Tajfel's (1978) Social Identity Theory, and Turner's (1979) Self-Categorization Theory (Tajfel, 1978; Tajfel & Turner, 1979, as cited in Leaper, 2011). Social Identity Theory was able to emphasize group bias and social comparison, while Self-Categorization Theory further dove into the cognitive process of personal

classification. These theories, among other continuously established ideas, are widely used as identity expands in understanding.

Since the initial discussion of Identity Theory, identity has been postulated to receive influence from who we surround ourselves with, illustrated by Walker and Lynn (2013) as, "role-based others (RBOs)," and overall "embeddedness" within a professional framework (p.164). Others have focused on work grounded originally by Marcia (1966), idealizing a four-element structure of professional identity as it extends to self-definition based upon senses of achievement, foreclosure, diffusion, or moratorium in the workplace (Wendling & Saga, 2022). Fraher and Gabriel (2014) highlight the notion of an "identity anchor" linked to a pilot's initial perception of flight (p.927). This primary thirst for flight, however, could have been birthed in adulthood, connecting more to the idea of an "identity continuum" as expressed by Eriksson, et al. (2020) (p.1970). This study pursued identification of factors that motivate a person to morph a hobby into a career, and further what happens when the same personal connection exists in both mindsets.

Research Questions

Research questions included in this study were as follows:

1. How do the opinions/perceptions of Part 121 airline pilots gathered through semi-structured interviews provide a holistic understanding of the relationships between their social identity in the general aviation community and their professional identity as airline pilots?
2. What are the key factors influencing social identity formation of Part 121 airline pilots who are engaged in general aviation activities?

3. How does the social identity formation of Part 121 airline pilots engaged in general aviation activities influence their professional identity?
4. How does Identity Theory explain the strength of relationships between factors of social identity formation and the professional identities of Part 121 airline pilots engaged in general aviation activities controlling for years of active engagement and flight experience?

This mixed methods approach focused on a pragmatic worldview, tailoring to a non-static perspective of experience-based change. As humans traverse their surroundings, including all elements, people, environmental changes, profession transformations, emotional alterations, our sense of self is not guaranteed to be fixed. Using an explanatory design guides discovery of an unestablished research tool, to be investigated via interviews and observations. A survey generated by the researcher, developed from literature review, consisted of 35 four-point Likert-scale questions, with intentions of drawing forth four potential factors through exploratory factor analysis. These factors that were hoped to be discovered in the quantitative phase were planned to then be tested in a qualitative phase for an expected outcome of increased emphasis of the factor solution. The qualitative semi-structured interview was designed from the quantitative results and coding with theme reduction was used to see how the factor solution fit actual Part 121 pilot opinion in open discussion. The quantitative Phase 1 research population included Part 121 airline pilots, that may or may not be participating in GA. The qualitative Phase 2 population followed up with strictly Part 121 airline pilots that do participate in GA. Participants for both phases were discovered in more of a snowballing formation. Nonprobability sampling techniques were used via convenience, quota, and referral methods. Participants were propositioned via IRB approved social media posts targeting job criteria of being a Part 121 airline pilot in a multi-stage

sampling design. Stratification did not take place as it would restrict the population potential in this case. Future, more targeted research, could take stratification into consideration. For exploratory factor analysis, adequate sample size has been referenced in a few formats. Kyriazos (2018) notes, "the stronger the data, the smaller the required sample to achieve adequate accuracy," with stronger data implying "high communalities, no cross-loadings, strong primary loadings per factor, etc." (p.2208). Nicolaou and Masoner (2013) suggest that, "the ratio of the number of people (N) to the number of measured variables (p) must be considered" (p.260). MacCallum and Austin (2000) propose a general rule that any N less that 100 produces unsupportable results (p.215). With 35 survey variables, this research thus strived for as many participants as possible, with a goal of at least N=100.

Initially, the data analysis involved finding variables relating to meaning from the quantitative findings. Data was manipulated in the IBM SPSS version 28 software. Descriptive statistics was used to assess normality, skewness, kurtosis, and potential outliers. Correlation was examined with intention of finding significance between variables as would be supportive of an effective factor analysis. Reliability analysis looked for a high Cronbach's alpha to ensure consistency of the proposed model. Exploratory factor analysis was performed, evaluating scree plots, eigenvalues, communalities, and shared variance to discover factor loading potential. The qualitative portion, designed from these quantitative results, was analyzed through computer-assisted coding and theme reduction via the MAXQDA program, to produce encompassing trends of self-identification that ideally fall deductively in line with expectations developed from the quantitative solution. However, inductive findings were not shied away from.

For this phenomenological strategy, validity threats existed on the qualitative end, given that the research, while explanatory in sequence, was largely exploratory in nature. Efforts were

taken to ensure that construct and content validity were managed via triangulation of multiple research sources, checking researcher bias, member confirmation, presentation of positive and negative findings, external review, and use of rich description. The bias of the researcher, as person who identifies with both studied professional and social segments, was explicitly emphasized to avoid adverse effects. Reliability was strived for so the research could be repeated with similar results. Reliability was addressed by checking for coding drift, reviewing survey data and interview transcripts, cross-checking with similar research, and keeping generalizability in mind, avoiding broad assumptions. This research pool was reflective of ideas that could exist in the whole population, yet there is no guarantee when the size will be abundantly small in comparison.

As far as ethical barriers, absolute freedom of risk to participants cannot be guaranteed as full protection of data is unobtainable. However, consent forms detailed research purpose, requirements, and resources for all involved. No foreseeable risk of health, injury, or emotional damage existed. No personally identifiable information was maintained, with recordings being deleted as soon as transcripts were documented, and location and IP addresses were blocked from display. Data was only viewed and stored on the computers of UND researchers involved in the study. IRB approval was achieved prior to beginning the research.

What makes a person desire to maintain footing in GA could relate to multiple factors, or it could come down to simple enjoyment. The examination of potential motives towards pastime retention could have positive implications towards promotion of two domains that are currently both struggling in numbers. Establishing a stronger linkage between the two aviation practices could expand safety enhancements, and at minimum, bind a hook ingrained within the mind of every airline pilot that once viewed GA with fondness. This was not a study of difference in skill

or passion, but an inquiry into meaning and purpose. Taking on the practice of flying pairs with a commitment to learning. The aviation world could benefit from learning of a potentially deeper connection between two very different forms of flight, that burrow so similarly in essence.

CHAPTER II

LITERATURE REVIEW

Identity Theory

Several theories have been established with the goal of piecing together a hierarchy of how a person ranks value behind their own components of identification. Overseeing proposals relate to individuals constructing a role-based view of themselves, materializing off career, familial structure, religious organization, etc., or by one's social groupings and the interactions had within them. The concept of evaluating a specific duty or function as a defining feature of personal character draws attention to the approach of Identity Theory, first presented by sociologist, Sheldon Stryker, in 1968. The general premise, per Stryker (2008), is tailored to the idea that, "society impacts self impacts social behavior" (p.20). Since initial discussion, identity has been broken down into a vast amount of directions, generally drawing from the origin of Identity Theory, while postulating additional features, such as communal foundations.

Identity Theory alludes to a person defining themselves by the importance of a role they feel they portray in life. The societal establishment of said role can inflict saliency of a given connection, a level of embeddedness. Further, who we surround ourselves with, under the umbrella of this role, can induce enhanced attachment if our social groups are built of role-based others, blending to the same categories in which we place ourselves. Identity Theory has been used as a pathway for creation of extended branches of self-definition, such as Tajfel's (1978) Social Identity Theory, and Turner's (1979) Self-Categorization Theory (Tajfel, 1978; Tajfel & Turner, 1979, as cited in

Leaper, 2011). Social Identity Theory was able to emphasize group bias and social comparison, while Self-Categorization Theory further dove into the cognitive process of personal classification. These theories, among other continuously established ideas, are widely used as identity expands in understanding. These theories produced high motive into the investigation of something deeper within the magnetism that aviation places on a person, either professionally, socially, or both.

Walker and Lynn (2013) attempted to highlight the impact social ties have on role identity distinction. With their inquiry into the influence role-based others (RBOs) have on personal identification, Walker and Lynn (2013) used name generators and social network analysis to examine what constitutes commitment to a certain personal label. Name generators were used to establish a research participant's social network. The circle of people a participant felt worthy of listing as connected them, acted as independent variables, defined as social attachment, with emphasis towards role-based relations. Also tested were the independent variables of emotional attachment, as well as overall embeddedness. These variables are defined in the Walker and Lynn (2013) study in the following manner:

1. Social attachment refers to, "the proportion of ties to role-based others" (p.164).
2. Emotional attachment refers to, "the average strength of ties to role-based others" (p.164).
3. Embeddedness establishes the idea of, "breadth of access that an individual's role-based group has to the rest of his or her social world" (p.153).

The overall identity salience, addressed by Walker and Lynn (2013) as, "the probability of enacting an identity in and across social situations," was highlighted as the dependent variable potentially affected by one's social network (p.161). Identity Theory, as noted by Walker and

Lynn (2013), hypothesizes that, "role expectations are internalized into self-concept through commitments to role-based groups" (p.152). Commitment, in this respect, is framed under emotional attachment. Walker and Lynn (2013) push to uncover whether the number of social ties or simply their strength of connection has more influence on role salience.

With their research, Walker and Lynn (2013) worked to uncover if an increase in role-based connections would positively correlate with an increase in role-based identity salience; if an increase in bond strength of said connections would positively correlate with role-based identity salience; and finally, if an increase of the embeddedness of role-based others in one's social network would relate to increased role-based identity salience (p.156, 159). Findings alluded to embeddedness becoming a more defining aspect of a person's self-definition. This conclusion may lead to, among numerous advancements, a more concrete branch of knowledge as to how we view ourselves, and how said view affects the lifestyles we lead. Our role that we place ourselves in, professionally or socially, has cause and justification. These role-based groups do not have to be either distinct or separate. With professional and general aviation flying, where the role-based groups hold such similarities, research in this thesis works to uncover characteristics of one group harmonizing with the other within a singular mental scape.

General Aviation Interest with Airline Pilots

Collectively, there is not an excessive amount of existing data on the precise number of airline pilots that participate in general aviation. According to AOPA (2019), over 80 percent of total pilots certificated in the US fly GA aircraft (p.2). This does not break down the specific value of airline pilots that fly GA, but references that the total is significant. As the airline world faces a pilot shortage, more and more fast paced training programs are being produced (Britton, AOPA, 2022). This may dampen the bond a pilot feels towards GA due to the initial imprint of

primacy not enticing sufficient desire to return, strictly on the basis of time alone. As noted by Curry and Dunbar (2013), no matter the activity, "similarity declines with frequency of contact" (p.337). While this is beneficial to the airlines, it is problematic to the GA community, as, per Bryan (2017), "the biggest issue facing general aviation is declining interest" (p.1). From a training perspective, using GA as means to a career goal, the experience is often tiring and not viewed in the same perspective as a hobby for enjoyment. As stated by Mendonca, et al. (2019), "a long day or night of mental stimulation, such as working with a course assignment or preparing for an exam, can be extremely fatiguing" (p.5). According to Bryan (2017), "the pilot population (as a whole) peaked in 1980, with 827,071 licensed pilots. Over the next couple of decades, those numbers started to gradually decline" (p.1). As discussed by Britton, AOPA (2022), as low-time flight opportunities increase in availability with decreasing pilot numbers, so does time required to be spent within GA. Farther, as major airlines allow for rapid progression into the left seat, time left for new professional pilots to give the same amount of attention to the GA sector, allowing for social identity formation, is not the same as it once was (p.1).

In addition, a survey developed by Shetty and Hansman (2012) made efforts to analyze personal perspective as to participation rates within GA. Via online host and non-probability sampling methods, 1,250 pilot responses were collected to contribute qualitative input regarding the choice of remaining active as an aviator. Per Shetty and Hansman (2012), of the 1,250 pilots who participated in their survey, only 16.3% of respondents were found to have an occupation within the aviation field. For those survey respondents that noted a decline in their flight activity, most cited that, "costs were a significant reason for why they did not fly" (p.62). Looking at the GA hobby and how the price adds up, a pilot has to take into account either aircraft rental or ownership cost, maintenance, hangar and storage costs, training upkeep, insurance, and expense

of fuel. Shetty and Hansman (2012) found fuel cost to be the substantial reason behind flight decline in survey participants, "with 41% of pilots stating that it had a significantly negative impact" (p.66). While many at the time of this study, just over a decade ago, were optimistic about GA participation in the future, the same challenges are still prominent today as the GA domain struggles to reverse declining trends in flight pursual. These present entry barriers so social identity construction, maintenance, and perpetuation.

Furthermore, a person's initial introduction to a given activity, often carries on to their overall interpretation of said activity throughout the course of their existence. Primacy, long since identified as foundationally critical for human interpretation, detailed within the basic Laws of Learning, has been adapted to several frameworks, and holds vastly true for how a person connects with any given element (Thorndike, 1927). With GA in mind, an airline pilot is presented with the practice of flying in a variety of different mindsets. Eriksson, et al. (2020), discuss the implications of identity components constructed during a person's adolescence. The research in this paper does not emphasize age of initial flight training, however, the ideas brought up by Eriksson, et al. (2020) highlight the rigidness of "identity commitments" made prior to assumption of new adult roles (p.1968).

In reference to a person's connection to an image of themselves as a pilot, adult growth can act as more of a "continuum," an evolving line, that reflects the notions perceived at the beginning of an aviation journey (p.1970). This idea presents a concept of a shallow end, filled deeper as we progress in life, but not emptied. If a pilot's first view of GA is that it is irrelevant, simply a tool to reach the appropriate flight time for career level work, odds are, that pilot does not perceive GA in the same way as an oppositely exposed pilot does. Many airline pilots are born out of a childhood of airshows or fly-ins. They knew a life in GA before they were aware of

a career path to the airlines (AOPA, 2016). This can all have a large effect on self-identity development with regard to the social component.

Professional Identity

By examining previous literature that emphasized identity formation specifically with regard to social and professional development, potential factors were created for research in this study. Dobrow and Higgins (2015) examine the idea that, "the development of professional identities occurs as a natural byproduct of a progression through each career phase" (p.569). We may be one thing, only until advancing to the next level. Many have referenced "belonging" and "attachment" as key pieces of the identity puzzle (e.g., Barbour & Lammers, 2015). Through extensive literature review, survey, and multi- level confirmatory analysis, Barbour and Lammers (2015) examine belonging, attachment, and beliefs as fundamental building blocks of a person's professional identity (p.40). Argued strongly is that "belonging" is more or less assumed, if a given construct, professional or otherwise, becomes a part of one's identity. "Attachment," however, is stated to, "reflect individuals' perceptions of the intensity of their connection to that category" (p.41). Lähdesmäki, et al. (2016) as well conducts a literature review that highlights belonging as, "a central concept of research increasing significantly in the 2000s" (p.234). Lähdesmäki, et al. (2016) discusses a frame of belonging as more of a desire for attachment, with attachment comparing to more of an emotional application (p.242). Looking at any piece of a person's relation to who they are, if they feel like they belong to a given community, they are more likely to feel like it is a part of their soul. With time in that frame of mind, would come the feeling of attachment to said idea. Time within a given community increases likelihood of said attachment and thus overall sense of belonging (Curry & Dunbar, 2013, p.337).

The process of selecting a career tends to pair with a goal of finding fulfillment and gaining something beyond monetary compensation. This prize comes as a result of commitment, passion, and hard work, yet is certainly not guaranteed no matter the efforts put forth towards its realization. Professional identities can be dominating for many, while very insignificant to others. In an effort to separate various levels of career attachment as related to identity, Marcia et al. (1966) establishes two central themes under professional development: exploration and commitment. Further broken down into statuses of achievement, foreclosure, moratorium, and diffusion, career impact on identity has become an element with a higher potential to be adequately quantified (p.552). With the intent of validating and expanding upon previous career identity measurement scales, Wendling and Sagas (2022) assembled two subscales based off the exploration and commitment positions examined originally by Marcia (1966) (p.522).

Ultimately, confirmed by Marcia (1966), humans have long been thought to pass through trial identities as they search for a sense of meaning in their lives (p.552). This process is commonly constructed throughout a person's adulthood, giving issue to many existing standards of identity measurement that give attention more to human development in adolescent age ranges (Crocetti et al., 2014). Evidence for the importance of career identity exists directly in the display of mental struggle faced by many who live with unclear direction in the professional domain (Wendling & Sagas, 2022, p.692). Erikson (1968) emphasizes that the formation of a career identity is essential for the basic functioning of individuals during adulthood (p.154). The fortune of finding this life meaning via professional standards needs to be more widely evaluated to allow for targeted support during its initial construction. Afterall, building any product tends to be a simpler venture if we have a blueprint to start with.

Marcia (1966) breaks down achievement, foreclosure, diffusion, and moratorium as critical linkages to career identity definition. Achievement would come after excessive career exploration, highlighting those who have actively worked to find their calling, and found success to some extent that they feel strength of connection. Foreclosure would be defined more as acceptance of a career without effective exploration into multiple avenues. Diffusion would relate to those without interest in the exploration process. Moratorium would refer to those exploring after a professional identity crisis (Marcia et al. 1993). Wendling and Sagas (2022) expanded from not only the original theoretical framework of Marcia, but also other projects that have stemmed from the same root structure.

Continuing off the ideas of Marcia (1966), Wendling and Sagas (2022) took a quantitative stance of exploratory factor analysis of a proposed professional identity model investigating career exploration (CIDI-E) and commitment (CIDI-C). Hypothesized was the existence of measurable factors that comprise a standard of both career exploration and commitment. Exploration defined traits of humans considering career pathways in their navigation towards fundamental professional establishment. Commitment targeted the level of engagement contained within those where career choice has been made and thus foundationally cemented.

In pursuit of exploration and commitment accentuation, Wendling and Sagas (2022) ran a Likert-type scale survey on a pool of US college graduates and found a framework that was able to reach adequate validity standards when put through a second phase of confirmatory factor analysis. The results brought attention to career identity as more of a long developing process, which connects with the growth of a pilot from GA training to the Part 121 professional level. A dream of a high-level pilot career does not constitute an identity that grows with experience. To

view this professional identity component as something measurable through a web of elements that make up its existence, gives motive to attempt to measure the interactions throughout the mental self-portrait that we project of ourselves.

Another study by researchers Fraher and Gabriel (2014) addressed the "occupational identity" of airline pilots, especially as to how it relates to a childhood dream of flying. There are several ways that a person can become an airline pilot, but what drives a person to commit to GA as a hobby is shown largely to connect with their perspective of flight before or during their initial training. Fraher and Gabriel's (2014) paper anchors this dream to loss of perspective from furloughed airline pilots, yet it can as well highlight lifestyle choices for active airline pilots. The "Phaëthon dream" from Greek mythology, linking the desire for flight to a human's core, attaches to a "long-standing archetype of flying and subsequently hardens into a shared occupational fantasy" that acts as an "identity anchor," which appears in several GA enthusiasts and Part 121 career pilots (p.927).

Via qualitative interviews, Fraher and Gabriel (2014) discussed the attachment to the flight identity with a series of pilots who had lost professional connection due to the hurdles that the flying world so commonly presents, such as layoffs, company closures, lack of hiring, etc. These pilots fell into two categories, those that moved on or those that remained stuck in desire to return to flight. Most spoke of flying, regardless, as being a major part of their self-identity, as verbalized by one participant, "it (flying) consumes you, it's your life and you identify with it very, very highly" (p.941). Those that moved on and flew in a hobby form within GA felt less of a connection to their professional identity if their new careers drifted out of the aviation arena (p.941). Due to the strength of flying as this identity anchor, without the professional component, many drifted more towards social flying or holding onto simply the label and the dream of return

(p.941). Fraher and Gabriel (2014) saw the passion for flight grip identity like a drug, stating that, “for pilots, love of flying was addictive, even seen as an illness” (p.937). An interesting note from this article was that for those pilots that moved on after flight career loss, flying still remained a part of their “identity narrative,” as authors stated that “these pilots still enjoy flying” (p.941). What would be interesting to explore would be how many of these pilots also had a social foundation for GA flying that was able to fill the loss that the professional component held.

Social Identity

Outside of use as a training tool, GA is commonly a leisure pastime (AOPA, 2019). Curiosity lies in how participation affects a professional pilot and how it may alter perspective and opinion of one’s career. Christensen, Rothgerber, Wood, & Matz (2004) examines societal norms in relation to behavior and identity formulation. Students from one university were tested on their response to a group-based reaction to a given task, studying emotional reaction to whether a group member is told if they conform or violate to a normative standard. Per Christensen, et al. (2004), “of the many norms that can influence a person’s behavior, the norms of important reference groups should be especially powerful. One reason for the impact of such norms is that they have implications for self-related emotions” (p.1295). This frame of thought brings attention to whether or not pilots who choose to leave GA have actually felt a part of the GA community at all. Many pilots step into a cockpit in the first place due to family background, peer motivation, or role model influence (Marintseva, et al., 2021, p.147) This may have a larger impact in the sense of belonging that a pilot absorbs as they navigate their years of flight time building. If the pilot never feels a part of the GA community, they may feel quite differently about the practice than a pilot that does feel that societal grasp. As Christensen, et al. (2004)

suggests, “in general, norms should only guide behavior to the extent that people have adopted the relevant group identity” (p.1295). How this group identity is formulated, when the group in question is GA, is a major topic of interest for this research.

Through review of political social groupings in relationship to self-identity, Kalin and Sambanis (2018) examine the potential motives behind a social identity formation and its resulting effects on behavior. Researchers discuss social identity from two perspectives, a “hard to soft” continuum (p.240). From these schools of thought, the “hard end” describes a social identity formed out of desire for bonds of belonging within a community (p.240). A person can have a desire to become a part of a given community, but for them to feel like it is a piece of themselves, the efforts to retain membership to said community must be maintained. There is a necessity of currency in regard to both knowledge and experience, to keep up with safety standards in flight practice of any form, career or hobby. Those that enter GA from this “hard end” perspective, likely participate out of sheer enjoyment and awareness of safety standards for upkeep. The “soft end” of social identity drifts more towards pursuit of “material self-interest” (p.240). Pilots with this social component find usefulness in GA, for reasons such as resume growth, networking, or skill practice. Kalin and Sambanis (2018) note that, “when viewed this way social identity is a kind of social radar or simplifying mechanism to reduce uncertainty about the world” (p.240). This approach connects highly to reasons behind the research of this thesis. Depending on the basis for social identity creation, factors of human behavior could easily tie into the professional identity component of self. While the Kalin and Sambanis (2018) article focuses on political influences, the ideas that social identity can provoke behavior rooted in the self-image that, depending on the person, may be largely professionally driven, gives rationale

that the two identity components may tie hand and hand easily within other domains, such as aviation.

Internal Dialogue

Conceptualizing our inner conversations with ourselves paints a defining picture of what self-identity is based upon. As the ideas behind self-identity grow in popularity, and thus investigation, the understanding of the depth behind our sense of person is exemplified by the vast amount of direction studies on the topic have taken. Psychologist Hubert Hermans developed the Dialogical Self Theory (DST) in the 1990s, which took aim at connecting the internal position of self with the external reflection society molds it to. Per Hermans, how a person communicates with the external world, is intertwined with the dialogue inside their minds, creating a "society of mind" in which "self-positions" take form and influence the interactions people place themselves in with others. These external and internal positions are not always in agreement with each other, which can affect the core of someone's sense of who they are in the physical world, and moreover, there is not one sole root in either definition. Who we identify as, is cause of a "multiplicity of selves" (Hermans, 2013, p.136). As Hermans describes, "as long as we attach to the implicit or explicit view that the self is united and coherent as it is, assuming that the self of one person is different from the selves of other people but identical to itself, we run the risk of ignoring the fact that, as part of a heterogeneous world society, the self has become more and more different from itself" (Hermans, 2013, p.135). One phrase, self-definition, is a mechanism with more gears than can accurately be projected.

Hermans uses a centuries old statement from Montaigne to initialize one of his articles on the "dialogical self:" "…there is as much difference found between us and ourselves, as there is between ourselves and others" (Montaigne, 1603, as cited in Hermans, 2013, p.135). In

relationship to the study detailed in this thesis, to pin self-definition on a singular piece of connection, professional or social, is vastly unrealistic. However, to grasp an idea of how components of our external and internal lives function together to produce an ultimate idea of human purpose is the primary goal. Konopka, et al. (2018) delved into the concept of "landscape of mind," as an "evocative metaphor that can facilitate the exploration of the inner world," hugely useful for psychologists aiding people in self-realization (p.311). The researchers built on the ideas of Herman's "I-positions," as dynamic external and internal elements within self-concept. External positions relate to our connections with others (my family, my boss, my children) and internal positions focus on the characters we feel inside ourselves (I as ambitious, I as happy, etc.) These positions give attention to our emotional bonds we place upon them (Konopka, et al., p.312). Konopka, et al. (2018) used this foundation within a case study of self-discovery for a 30-year-old male participant. The researchers had the participant use a series of stones to visually portray his I-positions in relationship with each other to portray a physical representation of his mental depiction of self. After first production, the participant was asked to rearrange the stones in a different order, which he was emotionally capable of doing, giving him a realistic view of the inner organization of his self-identification (p.315). Our emotions that we feel in connection to an activity, a presence, an idea, can have a high level of input on our projected behavior to the outside world, and more so the inner feelings as to how said behavior affects us. "I as a pilot," in the sense of a professional career, can be seen as an internal and external feature in relationship to "my airplane, my passengers, my airline, etc." "I as a pilot," in the social sense of GA, can be seen as an internal and external feature in relationship to "my friends, my community, my hobbies."

Using the ideas of "I-positions" as components of self-identity to pool into specifically professional and social branches for this study was able to drive a focal point for both quantitative and qualitative phases. What measure of emotions must be created and maintained to solidify meaning behind a given attachment, enough to make a person feel that it is a part of who they are? From a quantitative standpoint, this study used survey to grasp a general picture of reason behind professional and social connections to flying and the impact these connections have upon each other in relationship to sense of self. Drawing from this quantitative basis, qualitative interviews will attempt to extract pure themes behind identity formation, retention, and interaction.

Boulanger (2017) wraps DST into a division of "meta-frames" based upon versions of self entering an environment and audience inside self. As put by Boulanger (2017), with regard to both cases, "the environment colors the Self. The interplay of the two meta-frames leads to a situation where the Self is enclosed on both sides of society, that is, its external and internal sides" (p.207). In the perspective of the professional and social self-identity components of this study, this influence of environment and time is anticipated to hold vastly appropriate. Once existing in the GA environment does not contain the self permanently, but on a temporary span. When the self enters another environment, that of 121 aviation, the GA walls only stand for as long as the self, as a professional pilot, finds continued social audience that keep it there.

It is not to say that self-identity has not been deeply examined, but the ideas that continue to spawn out of original theories proceed to develop enhanced ideas to a greatly more in-depth understanding. Just as our sense of self has been depicted to consist of an abundance of dynamic elements that grow, mold, maintain, or decrease in relevance, the physical self moves and ages through a fluctuating environment. What a person links to is not a concrete, definable value, but

the interactions and resulting effects from component to component is something worth extended conversation as we uncover more behind the workings of the human mind.

Specific Factors of Self-Identity

Definitively, self-identity is a complex concept. The definition may be entirely different from person to person. What it means for an airline pilot to also be a GA pilot opens up a large band of potential future investigation. Professional identity and social identity are small pieces of a grand puzzle. A review of previous literature did display however, a few repetitive trends. Primacy stands out as a factor. Many even propose that self-identity growth is guided through adolescent sprout (Waterman, 2015; Crocetti, et al., 2014, Eriksson, et al., 2020). Several researchers emphasize belonging and attachment as separate, bonding factors behind self-identity and ties to societal roles (Barbour & Lammers, 2015; Lähdesmäki, et al., 2016). Time within an activity, professional or social, was an additional commonality. A role needs attention, maintenance, upkeep, and our presence within a group, actually participating, is widely addressed as potentially affecting self-identity (Fraher & Gabriel, 2014; Curry & Dunbar, 2013). For this reason, this research will begin Phase 1 with an exploratory factor analysis carrying the pursual of uncovering four potential factors impacting social identity formation within GA and effects on the mental landscapes for professional airline pilots: primacy, belonging, attachment, and maintenance. Phase 1 will steer the formation of questions for Phase 2. Both phases will target the same goal and research questions. The leading intention for this mixed methods approach will be to uncover clues as to if and how having a social identity as a GA pilot may affect a professional identity of a Part 121 airline pilot.

CHAPTER III

METHODOLOGY

Phase 1: Quantitative Survey and Exploratory Factor Analysis (EFA)

Above all, the goal of this research was to analyze how strongly a social identity impacts a professional one, specifically in relation to the social role of a GA pilot and the professional role of an airline pilot, which hold the same foundational base of flying. The study took on a mixed methods approach with an explanatory sequential design. Phase 1 consisted of a 35-question survey that was used as the primary tool of data collection. Each variable used a four-point Likert scale, ranging from choices of "Strongly Disagree" to "Strongly Agree." The four-point structure was chosen to provide for more inferential direction, avoiding a series of neutral responses. A pool of 85 career-level airline pilots took the survey remotely, on their own time, through the Qualtrics online survey development site. No data obtained was personally identifiable in Phase 1. The questions focused on personal feelings and thoughts towards GA, how pilots were introduced to the practice, and their overall lifestyle with regard to the GA community. Examples of survey questions are displayed in Table 1, with the whole documented in Appendix A. Data was put through various tests using SPSS statistics software. Participants, while all fitting the title of airline pilot, ranged in years of experience and companies worked for. These details were not collected, to keep with the pursual of respondent privacy. The only requirement for participation was to work as a pilot for a Part 121 airline or have retired from said line of work. What was especially interesting, was the voluntarily given feedback on the

research topic. Many shared, by choice, their passions with the career, the hobby, or both. The desire to support the topic beyond just survey participation, emphasized the importance of flying as an identity component prior to referencing the data at all.

Table 1

Phase 1 Example Survey Questions

Question	Name of Scale
2. I think GA is more than just a hobby.	Attachment
21. I was a part of the GA community before I knew I wanted to be an airline pilot	Primacy
29. I consider my flight training as time in GA	Primacy

With uncovering latent factors as having actual impact being the desired result, each question was tagged by a presumed potential to load towards one of the four factors of inquiry: primacy, belonging, attachment, and maintenance. Nine questions were labeled under the "primacy" category, ten under "belonging," ten under "attachment," and six under "maintenance." This survey was constructed with intention to be a piece of a larger research puzzle, with plans to include Phase 2 qualitative theming from in-person, phone, or email interviews. This proposed Phase 2 extension was made clear to research participants. Within SPSS, descriptive statistics were viewed to grasp a sense of normality from the data. Correlation was next used in order to assess the potential connections given variables may have had with one another. Reliability was examined to address consistency of the proposed model. Lastly, factor analysis was used in attempt to draw coupled factors from data that clustered together and allowed for an explanation of shared variance.

Phase 2: Qualitative Interviews with Coding and Theme Reduction

Phase 2 consisted of a 20-question semi-structured interview that led with 3 additional ice-breaker questions. Each question was widely open-ended, with intent of encouraging conversation and emotional connection to be drawn out from participants. Questions for this Phase 2 interview were created referencing the results of Phase 1. Examples of Phase 2 interview questions are listed in Table 2, with the entire interview documented in Appendix B. As will be described in Chapter III, Phase 1 did not result in the anticipated factor solution that was hoped for. That being said, the results did emphasize enough valid emphasis from descriptive statistic discussion, that Phase 2 was still desirable for advancement. Phase 2 was able to be slightly altered accordingly due to IRB approval on the original plan not being submitted at the time. What changed, was the motives of the questions and the breadth of the participant pool. Participants for Phase 2 were thus IRB approved to strictly consist of Part 121 airline pilots that do fly GA. This Part 121 airline requirement could also include pilots who had retired from such line of work. By trimming down the range of focus, the research goals could become more directive. Questions were created more towards the general scope on strength of relationship with GA and further, how participants feel personally that such linkage may affect their professional outlook. Questions were generated in a mindset similar to those of Phase 1, but an added drive of the concept of "need" was laced in. The overall intent was that this open-ended exchange could propel forward a more established result than Phase 1. A potential limitation of this research and an idea for future investigation on the topic is that perhaps an exploratory sequential design would have offered a more solidified proposal, producing more satisfactory results.

Table 2

Phase 2 Example Interview Questions

Question	Name of Construct
2. What sparked your interest in flying? How did you train and build time?	PRIMACY
8. How strong would you say your attachment is to the identity of being a pilot? How would you feel if you lost a medical were furloughed, etc., and had to change careers?	ATTACHMENT
18. Describe your motivation as it relates to professional and social identities of being a pilot? How do your goals differ between the two and how do they relate?	NEED

Phase 2 used a research pool collected via non-probability snowball sampling. The pool was significantly smaller than that of Phase 1, at N = 15. As stated, participants had to, currently or previously, fly for a Part 121 airline, as well as participate in GA. Participants ranged from regional level pilots with as little as one year of 121 experience, to retired Part 121 pilots with near 40 years of experience. The data obtained for Phase 2 was more personal and took a lengthier amount of time to retrieve than in Phase 1. Interviews took place either in person, via phone, or via email, based upon the location of the participant and the flexibility of their schedule. As in Phase 1, all participants signed a consent form. Personally identifiable information was taken in the form of recordings, however this PII was deleted as soon as transcripts could be documented. The Otter transcript platform was used to easily record and transfer discussion to printed form. Notes and memos were taken by the researcher. The transcripts were uploaded to the MAXQDA program for coding and theme reduction analysis.

Interview transcripts were reread for adequate understanding and participants were given the opportunity to confirm accurate interpretation. A coding matrix was made for ease of theme deduction. A theme matrix was made to evaluate widespread trends of the entire research population. To promote reliability, coding drift was kept in line to ensure meaning of questions did not fall off course from research goals. Transcripts were checked, and cross-checking with articles of similar structure took place, and potential for generalizability was emphasized. The research pool for both phases was a sliver of the entire Part 121 airline/GA population. Particularity over generalizability had to be stressed to avoid broad assumptions.

CHAPTER IV

RESULTS

Phase 1

Initially, it was found that of the 85 recorded responses received for Phase 1, only 61 participants actually proceeded with the survey at all past the first consent question. Descriptive statistics and correlation analyses remove missing data pairwise by default, so this would not impact initial trials regardless. These 24 missing responses were ultimately removed from the data as not a single variable was of inclusion. From a basic standpoint, simply looking at the normality of each variable, six variables stood out with skewness levels outside of appropriate range. These questions all trended towards the "Strongly Agree" answer, and all referenced an element of having GA act as an initial impact on their pathway towards being an airline pilot. Question A10 examined the importance a pilot may place in being an airline pilot. A10 was the largest outlier with a negative skewness level of -2.69. This variable would later be removed from the exploratory factor analysis process. However, A10 did display high levels of career identity importance in the airline pilot profession. Variables B1, P2, P6, P7, and P8 had negative skewness levels just beyond the normal barrier of -1.0. These could have been impacted by bias, as a majority of polled candidates were not of military background, and thus would have been exposed to GA as a part of their initial training by ICAO standards (AOPA, n.d.). A high kurtosis value did as well exist for variable A10, with a value of 7.68, indicating a leptokurtic distribution

producing a greater chance for effect from extreme events. This issue would also be resolved from the removal of this variable.

Next, correlation analysis was completed to see how the variables could relate to each other. The produced table gave indication to proceed with the exploratory factor analysis process. Nearly all variables were affected by one another. Two variables were seen to not have any significant correlations with any other variables, P1 and P2, meaning they may not fit well with the rest of the data. These primacy variables referenced aviation training structure and interest. This was surprising, as it was hypothesized that training style would have a large effect on GA perception. P2 would be removed from the EFA process. P1 was elected to remain at first, as it was thought to be largely due to the sampling process. A large number of survey participants were pulled from a Part 141 university reception. In the end, P1 was deleted due to the increase its removal gave to the Cronbach's Alpha of the individual "primacy" scale.

Proceeding onward, reliability analysis produced an instantly high Cronbach Alpha, $\alpha = .89$. The procedure used $N = 57$ cases as valid, with four cases excluded listwise based on all variables in the process. While this high of alpha was a pleasant start, it also bid warning of possible redundancy of questions. The Item-Total Statistics table indicated that elimination of variables A10, B3, B4, B6, P1, P2, M3, M4, M5 could increase Cronbach's Alpha further. These were noted for potential removal. Cronbach's Alpha shows internal consistency of items in a scale. Being positive, at $\alpha = .89$, it was confirmed that the questions were all formatted in the same direction, no reverse coding was needed.

Upon completion of a first run through of exploratory factor analysis with principal axis factoring, nine factors were pulled with an eigenvalue above 1.00, fitting Kaiser's criteria. While nine factors were identified, the loading of variables was rather scattered across the board. The

nine factors accounted for a total variance explained of 75.08 percent. While this was ideal, the loading was not. Communalities, showing a proportion of common variance within a variable after extraction, also had several variables quite below the sought after .7 level. Focusing on the scree plot, plateau appeared to occur after three or four factors. The KMO statistic, at KMO = .70, was adequate above the agreeable level of .5, however was hoped to be much higher. One finding that was highlighted from first glance, was that the attachment and belonging variables appeared to load onto one factor. This went against what was proposed through previous research, however other research reflected other careers. Just because the two concepts may be separate for say, medical professionals, does not mean that they will be for airline pilots in relation to GA.

Variables P1 and P2 did not initially load highly to any factor with a coefficient above 0.3. For this reason, and others stated above those variables were pulled first as shown in Table 3. Variables B4, B6, P1, P2, and M3 were removed next, for one, because their removal was said to raise the overall alpha, and two, because they loaded against their grouped factor with low communality values. Variables B1, P3, P4, P5, and P9 were removed for the second reason, low communalities, disperse factor loading, as referenced in Table 4. As variables were removed, attachment and belonging did not separate from one another with factor loading in the slightest. For this reason, attachment variables were removed altogether. Belonging variables loaded to a higher extent to begin with, so those were retained, and attachment and belonging were noted to merge as one factor. The final scale had 14 remaining variables: seven for attachment/belonging, three for primacy, and four for maintenance, as displayed in descriptive summary via Table 5.

Thus, a principal axis factoring analysis was conducted on 14 items with oblique rotation The Kaiser-Meyer-Olkin measure verified the adequacy for analysis, KMO = 0.76 and KMO

Table 3

Factor Analysis

Items	1	2	3	4
A1	.67			
A2	.50			.
A3	.73			
A4	.71			
A5			.30	
A6	.68			
A7	.48		.	
A8	.72			
A9	.87			
A10			.54	
B1	.73			
B2	.85			
B3	-.54			
B4		.65		
B5	.75			
B6			.42	
B7	.78			
B8	.71			
B9	.81			
B10	.56			
P1				
P2				
P3	.85			
P4	.43			
P5	.31			
P6				.80
P7				.82
P8				.82
P9	.68			
M1		.42		
M2		.53		
M3				-.31
M4		.65		
M5	-.56			
M6				.54
Eigenvalues	12.62	2.84	2.33	1.93
% Variance	36.07	8.12	6.65	5.52

Table 4

Communalities

Items	Initial	Extraction
A1	.773	.531
A2	.788	.422
A3	.837	.617
A4	.823	.635
A5	.683	.228
A6	.848	.637
A7	.710	.322
A8	.896	.765
A9	.922	.806
A10	.688	.314
B1	.665	.478
B2	.889	.715
B3	.719	.533
B4	.661	.533
B5	.918	.714
B6	.543	.270
B7	.865	.685
B8	.827	.548
B9	.858	.634
B10	.821	.587
P3	.936	.776
P4	.742	.351
P5	.699	.539
P6	.908	.798
P7	.778	.581
P8	.910	.745
P9	.763	.588
M1	.564	.312
M2	.709	.380
M3	.721	.149
M4	.767	.475
M5	.766	.483
M6	.727	.477

Table 5

Variable Summary Table

	N							
	Valid	Missing	Mean	Median	Std. Deviation	Variance	Skewness	Kurtosis
Belong2	61	0	2.69	3.00	1.272	1.618	-.288	-1.615
Belong3	61	0	3.08	3.00	.640	.410	-.071	-.485
Belong5	61	0	2.64	3.00	1.096	1.201	-.251	-1.227
Belong7	61	0	3.13	3.00	1.008	1.016	-.877	-.389
Belong8	60	1	2.13	2.00	1.127	1.270	.391	-1.309
Belong9	61	0	2.38	2.00	1.128	1.272	.065	-1.397
Belong10	61	0	2.93	3.00	1.014	1.029	-.658	-.617
Prim6	60	1	3.38	4.00	.958	.918	-1.568	1.438
Prim7	61	0	3.48	4.00	.788	.620	-1.504	1.751
Prim8	60	1	3.40	4.00	.867	.753	-1.534	1.786
Maint1	60	1	2.10	2.00	.896	.803	.675	-.075
Maint2	61	0	2.89	3.00	1.066	1.137	-.447	-1.086
Maint4	61	0	2.67	3.00	.978	.957	-.172	-.946
Maint6	61	0	3.44	4.00	.671	.451	-.809	-.436

values for individual items were greater than the acceptable value of 0.5. Three factors were found with eigenvalues over 1.0, a scree plot verified three, as did light cross-loading from a pattern matrix. After extraction, these three factors accounted for 65.36 percent of total variance. Cronbach's Alpha of the new scales came to a group, $\alpha = .82$, as displayed in Table 6. The individual alpha for the maintenance scale was weak at $\alpha = .36$ (Table 6). One factor was identified by attachment and belonging, another by primacy, and a third by maintenance. Each grouping of variables was averaged into a new variable per identified factor to be used for future analysis. The major issue with these results was that over half of the variables had to be removed, or coupled in the case of attachment and belonging, to obtain any product of factor loading that was not widely scattered in distribution.

With the Phase 1 EFA being rather indeterminate, it was still beneficial to address the basic descriptive statistics. The majority of variables had a mean with a value between 2 and 3,

Table 6

Factor Analysis Final

Items	Attachment/Belonging	Primacy	Maintenance
Belong2	.65		
Belong3	-.70		.
Belong5	.70		
Belong7	.62		
Belong8	.77		
Belong9	.94		
Belong10	.66	.	
Prim6		-.83	
Prim7		-.75	
Prim8		-.96	
Maint1			.50
Maint2			.54
Maint4			.48
Maint6			-.40
Eigenvalues	5.62	2.06	1.47
% Variance	40.10	14.75	10.52
α	.82	.85	.36

representing an opinion as near neutral as possible since the options for response were (1) Strongly Disagree, (2) Somewhat Disagree, (3) Somewhat Agree, and (4) Strongly Agree. This presentation pairs well with the EFA result that was unable to pull determinate factors, but did give rise to the concept that even one component of identity cannot be adequately broken down into select materials. What defines who we are is not able to be so adequately put to paper. Certainly, these values can be attempted to be measured, as with existing studies, yet the need for large expansion of grasp is inevitable if identity is truly to be put to quantifiable label. Variables A2, B1, P2, B3, P4, M6, P6, A10, P7, B7, and P8, representing near a third of the survey, saw means with more conclusive trends above (3) Somewhat Agree. Interestingly enough, these more compelling variables spanned all four hypothesized factors. Variable A10 sat with the most distinct level of opinion, with a mean of 3.70, close to (4) Strongly Agree. Being an airline pilot

was of strong importance to all participants. The professional component of self-identity was valuable regardless of whether or not a pilot had a social identity in GA. Only one variable saw a mean under 2.0, M5, coming in with a mean of 1.97. It was not a consensus that pilots could get so separated from the practice of GA that they felt they could not return.

Phase 2

Phase 2, having been established after evaluating the Phase 1 results, trimmed the breadth of the study to, a still large, but slightly smaller focus. This trim came with the intention of uncovering less broad results, which could be expanded upon in future research. Looking at exclusively Part 121 airline pilots, retired or currently employed, that also had social footing in GA, gave opportunity for potential understanding of the inconclusive Phase 1 results. Questions were still framed around deeper reasonings for social identity construction in GA and effects on professional identities in Part 121 aviation. As stated previously, participants ranged from one year of Part 121 airline experience, to entering retirement after a near 40-year career. Part 121 airlines of participants included regional level carriers, low-cost carriers, and legacy carriers. All interview participants had a social foundation within GA. Every participant was given the opportunity to answer all of the same 20 interview questions, plus 3 ice breakers. Interviews were documented via the Otter transcribing platform if the interview was able to take place in person. Transcripts were solidified as quickly as possible so audio recordings, a form of PII, could be deleted. Interviews that could not take place in person were completed via email with participants typing their responses. Codes were pulled from interview responses and deduced into themes, uncovering common trends and core ideas. The hope was that these themes would aid in making sense of the unclear Phase 1 results from which the Phase 2 interview was designed, which would provide guidance for future research on the topic.

During the interview process of Phase 2, and even more so through the review of interview transcripts, it was readily apparent that the results would trend well towards centralized themes. Codes were pulled that were recognized in all interviews, usually as a direct word or close synonym. It was remarkable the similarity of answers, down to precise phrasing. Questions were designed to entice such themes, and such, commonality was predicted, however the severe nearness among participant responses was highly beneficial towards solidifying Phase 1 findings. Codes pulled were broken into five relating categories, as displayed above in Table 7, to prepare for reduction to themes.

Openly, each participant expressed some sort of early fascination with flight. The majority had background influence from parents, friends, or relatives who were pilots. The first two interview questions inquired into initial introductions to aviation and spark of interest. Many participants noted personal connections, such as, "Dad was a pilot, so I was born with it in my blood" (Participant 3), or, "My grandfather and family friends are all pilots" (Participant 5). Participant 3 stated:

> I was born into it. I really don't think I've even thought about any initial primary interaction. It's simply been a part of my life since the get go. Like an emotional body part, I would say.

Those who didn't have close role models that were pilots all still addressed some childhood interpretation of desire for flight. This relates largely to Fraher and Gabriel (2014) with their qualitative research highlighting the metaphor of an "identity anchor" for airline pilots, stemming from the 'Phaëthon dream.' This concept draws from Greek mythology depicting the tale of a young man, Phaëthon, who had dreamed of flying since childhood and constantly flew around the chariot of his father, Helios, the sun god (p.945). Research participants from this

Table 7

Phase 2 Coding Matrix

Codes
Family Friends Background Childhood Dream
Identity Separate Identity Credibility Group Dependent
GA beyond flying Attachment Connection Passion
Community People Conversation Always able to return Social Bonds
Expensive Resources Airplane Ownership Safety Goals Learning Accessibility

study vocalized this common childhood attraction to flight with statements such as, “I have been an aviation enthusiast who had a love of airplanes since being a child” (Participant 1). Another said that, “I started flight training when I was 16 and have been fascinated with flying since 10 years old and knew it was something I had always wanted to do” (Participant 7). Some referenced specific events as a kid, such as, “I attended an event that was focused on getting girls

into aviation. I was able to ride in the back of a Beaver out of Seattle and it was so fun" (Participant 8). Others referenced youthful flying introductions with stories such as:

> I was interested in flying at the airlines or in the military from a young age. My friend's parents were at the airlines, and they belonged to a flying club. I went up a few times in the flying club in middle school/high school and I knew I wanted to be a pilot (Participant 10).
>
> I have always had an enormous admiration for pilots since I was a kid, it was synonymous of professionalism, elegance, application, bravery, and I get immediately a sense in my mind of the type of person I have in front of me when I hear they are a pilot (Participant 13).
>
> It [GA] had a critical influence on my growth in aviation. I spent a lot of time as a young boy at my local airport meeting GA pilots. Many would give me tours of their airplanes and one even took me for a ride in his Piper Archer (Participant 9).

Each participant had some initial view, primary glimpse, of what it meant to be a pilot, with no clear definition of a specific Part 121 label behind it. It was a youthful design that developed from the first perception into the pursuit of creating a self into said childhood idealization. The tone was set that flying in general was more than just a career. There was an intention that did not establish a boundary between flying socially or professionally in rank but rather of simply desire. All participants had their first view of flying through the lens of GA, stating introductions such as Participant 4, "I started out flying GA, GA was my introduction to flying," or Participant 5, "Growing up flying in GA as a non-pilot, I knew it was going to be my future, I got the bug." The common codes of background, family, friends, and childhood dream thus cemented to a general theme of primacy, which sat well with previous studies that had

focused on adolescence as being a major foundation of self-identity construction, as discussed in the literature review (Waterman, 2015; Crocetti, et al., 2014, Eriksson, et al., 2020). While this was highlighted as a possible restriction of focus from previous studies, it seemed to hold strong through adult participants in this research. Primacy was a proposed factor explored for in Phase 1. This may have not stood out as well through factor analysis for a number of reasons such as question wording, participant pool, number of participants, etc., but would be worthwhile for investigation in future studies from the emphasis displayed through Phase 2.

As Phase 2 interview questions guided discussion towards identity solidification with the term "pilot," such as with personal sense of self or introductions, it was an interesting mixed bag of responses. Some participants felt being a pilot was a major component of their self-identity, while others did not. However, most noted that being a pilot was a common adjective of self-description. Participant 5 explained that, "I wouldn't say I self-identify as a pilot, but my friends and family would describe me as a pilot as they would as a gender." Participant 12 stated, "When I am out with my friends who are not pilots, they introduce me and then say, "she's a pilot." I think people see me as a pilot first and person second." Participant 4 noted that if they lost the ability to fly, they would "probably have an identity crisis and a difficult time." Conversation for these self-identification questions all trended towards participants not declaring it to others upon meeting, but ultimately feeling a strong bond of soul to the practice of flying and its image.

When asked about how their existence in the GA domain influences their professional flying, most participants noted that they enjoyed flying with other GA pilots more, as it gave them an instant point of conversation. Participant 4 referenced the enjoyment of working with GA crewmembers by stating, "we share more passion for aviation and have something in common to discuss." Participant 1 also explained that GA crewmembers "have a greater passion

for flying." Participant 2 emphasized that flying with other crewmembers who also are involved in GA, "creates a bond to share the passion and the hobby." Participant 2 further explained that:

> I usually can tell by their attitude and sometimes their techniques [if they fly GA]. GA pilots seem to care more about airplanes. They are softer on the brakes for example. Brakes and tires are expensive in GA. So, they are gentle in GA and at work.

While the within group commonality was well enjoyed, what was interesting is that nearly every participant expressed a divide between the GA and professional groups. Participant 7 detailed that, "it was a big change getting hired by an airline because then GA pilots don't see you as much as one of them." Participant 6 noted that, "I have always tried to play down being an airline pilot when around my GA friends." Participant 3 explained that:

> I work with so many [121 airline] that aren't involved with GA at all. I don't wear GA on my sleeve as an airline pilot and the same vice versa. When I do interact with those that do both, it gets fun on a different level.

This group division was exemplified through previous literature that discussed the importance of role-based others. Our behavior can adapt to blend to a given group situation, as a way to "fit in," and this is absolutely expected for groups we already feel so much a member of (Walker & Lynn, 2013, p.153). Participant 9 spoke of this group division by saying, "I consider the two [groups] linked in that my colleagues in each associate me with the other. My airline colleagues know me as a "GA guy" and my friends in GA know me as an "airline guy." Breaking outside the role-based groups labels one as different from the norm.

Despite the role-based division, a unique point made by many participants was sense of credibility that flying GA gave them as a professional pilot and that flying professionally in turn, gave them as a GA pilot. Participant 4 explained this by saying, "I feel like my professional

identity gives me credibility and respectability in my identity in GA." Participant 6 also emphasized that, "I think that I am well respected within my airline community and that being active in GA adds to my credibility." Participant 10 stated that, "my skills as an airline pilot are rooted in GA." The professional and social components of identity are definitely shown to be separate through these interviews, however their common root does navigate through both sectors. The role-based divide is apparent, yet the effect the two identity components have on each other is as well. Participants found comfort in finding professional group members who fit their social mold at the same time. This hints at how we navigate towards people of similar roles to ourselves. To reduce these codes related to self-identification, identity, separate identity, credibility, and group dependence, the common theme that stood out was a general sense of credibility. Credibility referenced the internal thought process seen within group and out of group, and how the two connecting with each other simply within one mind, all came down to a notion of worth. Credibility, being trusted and believable, traversed both self-identity components through the shared foundation of flight. In reference to the Phase 1 findings, this sense of credibility seems more along the lines of what was searched for through the factor of belonging.

With regard to the next code grouping, GA beyond flying, attachment, connection, and passion, these focal points were targeted via questions on loss of flight career, or loss of currency from GA. When asked what a participant would do if they lost a medical, were furloughed, lost their pilot career, all answered that it would essentially be devastating to their sense of self, but that they would recover professionally. Participant 9 explained:

> I have a very strong attachment to being a pilot. It is my core professional competency. Losing my medical and my flying career would feel like losing a part of my soul. That

being said, I have been furloughed and was still able to provide for myself through other means.

Participant 8 stated, "if I didn't have a medical or was furloughed, I'm not sure how my interactions with other people would go." Participant 1 discussed that:

> I am extremely attached to this career. Any career path change would be an extremely difficult transition. I have seen this scenario play out of friends and colleagues and see the toll it takes on their lives.

This huge heart tug that pilots have towards their practice is special and strong, as emphasized by multiple sources of previous literature, media, movies, books, and stories (Peyrat-Guillard & Grefe, 2020; Ashkraft, 2005). As discussed in the literature review, Barbour and Lammers (2015) define attachment as "strength of perception" (p.41). If this strength were numerically measured for aviators, professional, GA, or presumably otherwise, it could be easily predicted that the value would land on the high scale. The perception that attachment describes can act as the element of passion in this study. Passion has been defined as, "an intense affective state accompanied by cognitive and behavioral manifestations of high personal value" (Chen, Yao, & Kotha, 2009, as cited in Pollack, et al., 2020, p.313). Passion was an easy find with research participants, as they all spoke something along the lines of, "flying is a passion more than a job. Flying fulfills my need of freedom and happiness" (Participant 13). Participant 3 described how, "being in the air is a fix." The level of passion would be worth examining from professional pilots who did not fly GA. Participant 12 noted that, "I think pilots who learned from GA have more passion. They chose aviation for aviation."

The connection, the passion, the level of hold that flying places on these participants, it all can couple into a pronounced theme falling under attachment. Ultimately, the act of flying

provides a feeling of homage for these participants that encapsulate them professionally and socially, consuming such a large fraction of their minds and the time they choose to give. As Participant 14 puts it, "I feel out of place when I am not flying. Flying is where I am myself. It is different, GA and airline flying, but the sense of home is the same."

Building a social foundation, as discussed by Walker and Lynn (2013), is often built from role-based relationships and societal ties (p.152). In this respect, it is not surprising that regardless of participant and their answer to Question 9, referenced in Table 8, all confidently felt that GA was an identity built around fellow group members. In response to Question 9, 80% of participants answered "no," and 20% answered "yes." The answers of "yes" landed more in a field with regard to upkeep of social activity in GA only existing while flying, for them personally. The answers of "no" were very definitive, for example:

> Absolutely not. I would say 50% of our local EAA chapter aren't even pilots. The love of the aviation scene is what it's about. It's one word…PEOPLE. (Participant 3).
>
> I do not believe so. Many GA-centric groups such as the EAA and AOPA share aviation with a very broad community which includes thousands of non-pilot participants (Participant 9).

Conclusively, Participant 5 vocalized that GA is "not about the airplanes, it is about the people who fly them!" This grasps to the Phase 1 factor of "belonging." As examined by Allen (2021), construction of a social group that shares similar values and mindsets forms a circle of protection and comfort around a person. Allen (2021) describes belonging as a personal "evaluation that may relate to the quality of social connection, to their meaning, to a person's satisfaction with them, or even to the way someone feels towards a place or an event" (p.2). Once the sensation of "home" is felt, a person strives to continue the growth of belonging as a basic human need (p.1).

Table 8

Phase 2 Example Interview Question

Question	Name of Scale
9. Do you have to fly GA to be a part of GA?	BELONGING

This connects to participants speaking of how, even if separation from GA occurred, they knew that a return would come, such as by saying "I always knew I'd be back" (Participant 2). Participant 15 summarized the theme by saying, "it's a community. There are different roads, different houses, all in the same neighborhood, but it's all connected." The fourth theme, community, was deduced from the codes people, conversation, community, always able to return, and social bonds.

The final codes that appeared were expensive, resources, airplane ownership, safety goals, learning, and accessibility. These codes strongly related to the factor of "maintenance" that was searched for in Phase 1. Several participants, when questioned about reasons for loss of GA currency or temporary periods of separation, immediately acknowledged the high cost as a major issue:

> I really enjoyed flying GA during training and time building. It took a back seat when I got to the airlines mainly because of the cost. I viewed GA as an expensive hobby that I couldn't afford. It would be years later when I decided to get checked out in a 172 and start renting (Participant 2).
>
> I love my airline job, but I knew becoming an airline pilot would allow me to have the income to stay active in GA (Participant 5).

Others spoke of "lack of resources in my area" (Participant 1). Several participants noted ownership of an airplane as supportive of cementing their GA activity, such as Participant 6, "I own two airplanes out my back door." Looking at the GA hobby and how the price adds up, a pilot has to take into account either aircraft rental or ownership cost, maintenance, hangar and storage costs, training upkeep, insurance, and expense of fuel. GA proves to be an investment in satisfaction, but the theme of truly committing to the practice is essential. A pilot that pays in ways of both time and money, to feel safe as a flying pilot, will pay more in repetitive costs if this continuation of experience and learning is not consistently met. This would be in addition to the functioning physical costs of flying, such as fuel and equipment.

Maintaining full position in the GA field involves the same concepts as the professional field. A pilot must put safety above all by practicing and consistently learning in order to be appropriately in control. This was widely acknowledged by all research participants as an element ingrained through GA and carried and developed ever since as experience grew. Participants addressed this learning value in ways such as Participant 1 saying, "GA laid the framework for learning critical skills to succeed as an airline pilot. Participant 3 stated, "the best pilots will share their mistakes, to allow others to learn from them, and not their greasers. Other participants made comments such as:

> I want people to know that I'm professional and safe both at work and in GA. If I act in an unsafe manner in GA, I would feel that others would assume that's how I am at work (Participant 2).
>
> Complacency in the flight deck is always a looming threat regardless of aircraft. We can mitigate that with a mind geared towards being better with each flight. Experience gives us another flight to have learned from (Participant 15).

These codes that resembled the proposed factor of maintenance in Phase 1, were thus able to be reworked into the theme of "commitment." Commitment was able to more strongly capture the attitude behind the drive for upkeep, learning, and safety that a pilot puts forth based upon their rooted identity that is enhanced since first glimpse of flight. All codes and themes deduced are displayed in Table 9.

Table 9

Phase 2 Theme Matrix

Codes	Themes
Family Friends Background Childhood Dream	Primacy
Identity Separate Identity Credibility Group Dependent	Self-Credibility/Worth
GA beyond flying Attachment Connection Passion	Attachment
Community People Conversation Always able to return Social Bonds	Community
Expensive Resources Airplane Ownership Safety Goals Learning Accessibility	Commitment

CHAPTER V

DISCUSSION

Through the comparison of Phase 1 and Phase 2 results, it becomes clear that this research would have been potentially more effective as an exploratory mixed methods design as opposed to the explanatory direction it took. The research goals were exploratory in nature, and the findings from Phase 2 were much more directive than those of Phase 1. That being said, Phase 2 did build off of Phase 1 findings, and should this research continue, set up for a much more grounded approach to what could be tested again in quantitative format with a more organized platform of reworded questions and participant pools.

Inconclusively, attachment and belonging have only been suggested to be considered as separate entities. Barbour and Lammers (2015) define belonging as, "simple membership," and attachment as, "individuals' perception" (p.41). Others, such as Lähdesmäki, et al. (2016) suggest that attachment of various forms can build into an overall sense of belonging. The researchers proposed that, "the concept of belonging has been used to explore and make sense of wide range of phenomena that scholars have found difficult to address using the concept of identity" (p.234). In this respect, it can be emphasized that belonging and attachment cannot be either grouped or separated on an all-encompassing tone. The meaning of the two could vary depending on the given situation. For GA, as a hobby and a training tool, the ideas of belonging and attachment may very well merge into one factor, as suggested by this initial Phase 1 research. Belonging could also encapsulate a more common theme of community after seeing in

Phase 2 that the people who made up the social groups within GA were largely the reason that participants found homage there.

Primacy, widely accepted as a piece of the *Laws of Learning*, was not clearly identified as an impactful component of GA social identity in Phase 1 (Thorndike, 1927). However, primacy was excessively emphasized in Phase 2. A major flaw of this research was the pool participants were pulled from for Phase 1. Being that the majority came from a Part 141 university and very few from military where GA training is not essentially necessary, more responses from a variety of pilot backgrounds will need to be examined for further evaluation. Bias also was indicated as a detrimental factor being that many participants were found at a GA airshow. Phase 2 highlighted an essence of primacy, whether through parental view, friend, role model, or some influence from childhood image in every single participant. Primacy was thus elected to be retained as a theme in Phase 2.

Self-credibility and worth also came into display from Phase 2, fitting from a blend of the primacy influence as well as that of attachment and belonging. Participants all developed an image of a what a pilot should be, falling under ideas of respectability, preparation, strong efforts, motivation, freedom, and a united front towards safety in the skies. There was a view that participants wanted to present to others, which came down to a person they wanted to be inside themselves. This theme fit well with previous literature discussed earlier in this paper, and ultimately drew attention to the core fundamentals of the research questions. The goals of the two identity components, professional and social, despite the division of groupings noted by participants, were foundationally verbalized to be the same. As put by Participant 3, “my goals in GA and 121, to me they are one in the same.” The social identity component and the professional identity component, in this respect, were seen to enhance each other actively.

Maintenance, for this study meaning upkeep of practice and skill, was noted to be of importance by participants, however, the questions intended to be variables for the maintenance factor did not produce as strong of loading values or communality values as anticipated in Phase 1. Questions could be more specific and reworded after the influence of the qualitative interviews, where the maintenance theme displayed itself more as a motive for commitment. Mental satisfaction was discussed to be associated with currency as a pilot, because of its association with all of the other themes. Currency makes pilots feel at their best, like their credibility exists, that they fit in their community, their attachment is realistic, and the influences that drove their desire to fly are intact. Community was apparent in all participants from Phase 2, which drove home the social bonds suggested in previous literature, both in count and strength. Currency makes a pilot safe, as was acknowledged by all through an emphasis on the value of learning. The commitment to safety was constant regardless of experience. Adding a fifth theme as opposed to the originally suggested four factors simply was required through strong codes in Phase 2. The essence of each theme varied enough to separate them and thus produce final conclusions of: Primacy, Self-Credibility/Worth, Attachment, Community, and Commitment.

Bringing Identity Theory in, to envelope all five themes, per Stryker and Burke (2000), "identity theorists hypothesized that the higher the salience of an identity relative to other identities incorporated into the self, the greater the probability of behavioral choices in accord with the expectations attached to that identity" (p.286). With salience acting as prominence, like embeddedness discussed in the literature review, the social identity and professional identity of GA and 121 pilots respectively, can be displayed as verification of one another. With the root of flying holding strong in both fields, the identities can grow separately, still interplaying with one another. The role of emotion behind both identities would mark an important beginning for

future research, as both Phase 1 and Phase 2 and their results compared together, were able to extrapolate the importance of mental sentiment behind a pilot's behavior.

With regard to future research, a larger, more diverse pool of survey participants would provide more direction. This is not to say that this project was a washout whatsoever, however results produced strong indication that this research is more exploratory than anything and will thus need continued edits. Performing a mixed methods approach to this complex topic was ideal, with each step building more routing as learned from the last. However, clearly adjustments to the research instruments would also be beneficial.

Examining our variation of thought is show center to understanding ourselves. We discuss our differences as a human species in so many forms, but as put by Stosz (2021), "perhaps the least understood, and most meaningful, type of diversity is cognitive diversity, which relates to the mind and brain" (p.1). As per Ashcraft (2007), professional identity is said to, "encompass a wide range of phenomena entailed in the dynamic relation between the abstract image and actual role performance of a job…but image and role tend to be associated with different kinds of realities" (p.12). This research displayed that the career identity for airline pilots was important to them, and the effect of also having a social identity in GA had a positive parallel interrelationship. The inconclusive results of Phase 1 could have easily been due to not having enough participants without social connection to GA to obtain a clear picture of effect. What was apparent however after Phase 2 completion, was that GA or not, 121 pilots have passion for their careers. If a social identity in GA exists as well, it is similar, grounded upon a primacy influence, and grown through a similar idealization, as it the proceeds to stem into the professional identity of the 121 careers. The plant is still one plant, there are just multiple buds, whose growth proceeds from the same roots, but demand the same care. Primacy, self-

credibility/worth, attachment, community, and commitment all circulate as promotion of desire to feed the roots.

APPENDICES

Appendix A
Survey Questions

Phase 1 QUAN

Variable	Survey Questions	Scale
v.A1	I feel current in the practice of flying GA aircraft	ATTACHMENT
v.A2	I think GA is more than just a hobby	ATTACHMENT
v.B1	I have friends/family that also take part in GA	BELONGING
v.A3	I feel a sense of home in GA and as an airline pilot	ATTACHMENT
v.B2	I currently own an aircraft or would like to in the future	BELONGING
v.P1	My flight training was through a structured program (ex. collegiate, Part 141, etc.)	PRIMACY
v.P2	I have always been interested in aviation	PRIMACY
v.B3	Being involved in GA is too expensive	BELONGING
v.M1	I would participate in GA more if I lived closer to a small airport	MAINTENANCE
v.M2	I would participate in GA more if I had access to an aircraft	MAINTENANCE
v.B4	I would be more eager to participate in GA if I had more connections to others in GA	BELONGING
v.B5	I feel a stronger connection with crewmembers that also fly GA	BELONGING
v.M3	I worry the threats of GA could put my airline career at risk	MAINTENANCE
v.P3	My role models participated in GA so I participate in GA	PRIMACY
v.M4	Not feeling current in GA flying discourages me from participating	MAINTENANCE
v.A4	I miss GA when I am not around it for a while	ATTACHMENT
v.P4	How you were introduced to GA affects your perception of it	PRIMACY
v.B6	You have to fly GA to be a part of GA	BELONGING
v.M5	I feel too separated from GA to get back into it	MAINTENANCE
v.A5	The idea of being a “pilot” exists in my self-identification as would something like ethnicity, gender, religion, etc.	ATTACHMENT
v.P5	I was a part of the GA community before I knew I wanted to be an airline pilot	PRIMACY
v.M6	I feel knowledgeable about what GA consists of	MAINTENANCE
v.A6	Being a GA pilot is part of who I am as an airline pilot	ATTACHMENT
v.P6	GA played a large influence in your journey to becoming an airline pilot	PRIMACY
v.A7	When defining myself as a pilot, I make this statement from more of a broad sense than an occupational sense	ATTACHMENT
v.A8	As an airline pilot, it is important to me to be also be recognized as a GA pilot	ATTACHMENT
v.A9	Being an active GA pilot is important to me	ATTACHMENT
v.A10	Being an airline pilot is important to me	ATTACHMENT
v.P7	I consider my flight training as time in GA	PRIMACY
v.B7	I plan to be a part of the GA community in years to come	BELONGING
v.P8	GA had a large influence in my journey to becoming an airline pilot	PRIMACY
v.B8	I spend a lot of time outside of work around airplanes	BELONGING
v.B9	I participate in GA events beyond flying (ex. airshows, fly-ins, affiliated group subscriptions, etc.)	BELONGING
v.B10	I encourage other pilots to take part in GA events	BELONGING
v.P9	I experienced GA outside of training and flight time building	PRIMACY

Appendix B
Phase 2 Interview Questions

Phase 2 QUAL

Ice Breaker Questions	
How long have you been flying?	
How long have you been with the airlines?	
How large a role does GA have in your life?	
Interview Questions	**Framed Scale**
1. What was your background with aviation before you began flight training?	PRIMACY
2. What sparked your interest in flying? How did you train and build time?	PRIMACY
3. How large of an influence did GA play in your journey to becoming an airline pilot?	PRIMACY
4. How strongly would you say your initial primary interaction with general aviation influenced your attachment to the practice?	PRIMACY
5. Upon starting an airline career, how did your opinion of general aviation change?	ATTACHMENT
6. Does the term "pilot" exist in your self-identification as would something like ethnicity, gender, religion, etc.?	ATTACHMENT
7. When defining yourself as a pilot, do you make this statement from more of an occupational view or a broad sense?	ATTACHMENT
8. How strong would you say your attachment is to the identity of being a pilot? How would you feel if you lost a medical were furloughed, etc., and had to change careers?	ATTACHMENT
9. Do you have to fly GA to be a part of GA?	BELONGING
10. How do you include general aviation culture in your life? (airshows, magazines, fly-ins, etc.)	BELONGING

11. How do you feel that your social identity in GA impacts your professional identity as an airline pilot?	BELONGING
12. Do you find that you enjoy flying trips more with other airline pilots who participate in GA?	BELONGING
13. Have you ever lost currency as a GA pilot to a point where you questioned reconnecting?	MAINTENANCE
14. What ways do you stay current as a GA pilot? When you can't find time for GA, do you find yourself missing it?	MAINTENANCE
15. What are examples of reasons that have prevented you from spending time in the GA realm? How did this affect you?	MAINTENANCE
16. When you are away from GA for a while, does your self-image as a professional pilot change? Does your mental satisfaction change?	MAINTENANCE
17. Does your desire for currency feel like a need for well-being and sense of self? In what ways is flying more than just a job for you?	NEED
18. Describe your motivation as it relates to professional and social identities of being a pilot? How do your goals differ between the two and how do they relate?	NEED
19. A common saying is that you never stop learning as a pilot. What does this mean to you beyond terms of just staying up to date with safe flight practice?	NEED
20. Do many people in your social group also take part in GA? In what ways is GA something that keeps you connected with friends and others?	NEED

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