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FACTORS INFLUENCING FEMALE AVIATION PROFESSIONALS’ CHOICE OF CAREER

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Despite much attention, there continues to be a low level of female participation in the aviation industry. In an earlier qualitative study of female aviation students, it was found that having parents who were supportive of their daughter’s career choice was the most influential factor in student career decision making. As a follow up to this earlier study, a Likert-scale type survey was distributed electronically to both active female aviation professionals and to current female aviation students. The survey allowed for participant identification of the factors that were most influential for them both choosing and remaining in an aviation career. Factors such as influence from parents and other significant adults, previous exposure to the career field, education and training requirements, and lifestyle factors were all evaluated. Supporting the previous study, parental support was found to be the most influential factor in a female’s choice of an aviation career.

The attraction of female students into the traditionally male-dominated fields of science, technology, engineering, and math (STEM) is a national priority, as evidenced by the America COMPETES (Creating Opportunities to Meaningfully Promote Excellence in Technology, Education, and Science) Act, which was signed into law in August of 2007 (America COMPETES, 2007). This bill was subsequently reauthorized in January of 2011 (America Competes Reauthorization, 2011), signifying that progress needs to continue in this area. Efforts are underway by industry, government, and academia to increase the representation of females in all of these areas, and aviation is no exception (Chavanne, 2008). Some indications point to improvement in this area. For example, Ison found that the number of women pilots in the United States has increased over the past ten years, that there are now more women enrolling in collegiate aviation programs than ever before, and that there is more female faculty members involved in aviation education than there has been historically (Ison, 2008).

Even given this focus of attention and the improvements indicated above, there is still much room for improvement in this area. An examination of the statistics available on the Federal Aviation Administration’s (FAA) website brings clarity to the scope of the problem (Federal Aviation Administration, 2009a, 2009b). For example, there were only 5,636 female certificated Airline Transport Pilots in the United States in 2009, out of a total of 144,600 Airline Transport Pilots. This means that only 3.9% of the pilots at the highest level of certification are women. The Commercial rated pilot numbers are slightly better, but even then only 6.6% of the Commercial pilots are female; similarly, only 6.7% of the nation’s Certified Flight Instructors (CFIs) are women. The aviation maintenance area is even more dismal, with only 2.1% of the certificated A&P Mechanics being women. One area that is slightly higher is certificated Dispatchers, where 16.8% of those certified are women; but even this is obviously far below the level of parity with men.

Perhaps even more sobering than today’s statistics is the realization that little improvement has been made in the last decade. In 2000, 3.1% of the nation’s ATP’s, 4.7% of Commercial pilots, 6.4% of the CFI’s, 1.5 % of A&P Mechanics, and 12.6% of Dispatchers were female (Federal Aviation Administration, 2009a, 2009b). When these figures are compared to the 2009 data, it is obvious that efforts to date to increase female participation in aviation careers have not been highly successful.

Numerous studies have been conducted to attempt to determine how to improve female representation in traditionally male fields. Some of these studies have focused on arousing initial interest
in these fields, while others have focused on retention of students once they are enrolled in a traditionally male program (Turney et al, 2002). Many of these efforts have come to the conclusion that the effect of long-held stereotypes cannot be ignored, but must instead be consciously addressed. In a 2009 study regarding female flight students’ perceptions of gender biases at their institutions, Depperschmidt & Bliss found that female flight students felt there were not enough female professionals employed at their institution to serve as role models for female students. In another 2009 study, the factors that either encouraged or discouraged female students from enrolling in the Aerospace Department at Middle Tennessee State University (MTSU) were explored (Zlotky & Beckman, 2009). This study found that the majority of the study participants had parents that strongly encouraged education and supported their daughter's career choice. It was also found that many female students had someone outside the family that encouraged them to pursue higher education, although not specifically an aviation career. In fact, most of the students interviewed did not know anyone working in aviation prior to pursuing a collegiate aviation degree. Finally, it was found that about half of the students interviewed had encountered others with negative stereotypes about females in aviation. This was consistent with the findings of the Depperschmidt & Bliss study.

Methodology

Since the research that has been done to date on female attraction to and retention in aviation careers has focused primarily on students, it was decided that it would be a logical next step to determine what factors influenced currently employed female aviation professionals to enter their career field. This data could then be compared and contrasted with the factors that influenced female aviation students to pursue their career field. To carry out this study, approval was granted from the MTSU Institutional Review Board (IRB) to conduct a human subject research study of female aviation professionals and students. A survey was created using the online survey website, SurveyMonkey. The survey was distributed to aviation professionals via two methods. First, the organization Women in Aviation, International provided a link to the survey on their February 2009 website, and also posted the survey link on their blog. Second, the electronic aviation newsletter, “Flight Safety Information”, distributed by Curt Lewis, provided a link to the survey in the February 15th edition of the newsletter. There were a total of 30 female aviation professionals who responded to the survey from these two sources. An identical survey was distributed via e-mail to current female aviation students at MTSU. There were 24 students who responded to the survey.

The survey contained several demographic questions to determine the basic backgrounds of the individuals completing the survey, including the field of aviation in which they are currently employed or studying, and (for the professionals) their number of years of experience in their field. The rest of the survey consisted primarily of Likert-scale questions. The first set of questions dealt with the influence of the participants’ parents (or primary care-givers) on their choice of career. Items such as the participant’s relationship with their parents as a child and adolescent, their parent’s personality type, and how their parents felt about their choice of aviation as a career field were all explored. Next, the influence of other individuals on the participant's choice of career field was examined, including that individual’s relationship to the participant, if that person was involved in the aviation industry, and if their influence was positive or negative. Then, a series of questions for the professional participants attempted to discover the level of difficulty females experienced in entering their chosen aviation career. Items such as the level of difficulty they experienced in training, how well their education prepared them for their career, how well they feel they have been accepted by their peers, the level of difficulty they have experienced in being promoted, the challenge of balancing a career and family, and the pressure they feel to conform to traditional roles were all evaluated. While the student surveys also contained this section, their responses were not used in the data evaluation, since they largely have no industry experience upon which to base their responses.
Data Analysis

As indicated above, there were 30 female aviation professionals and 24 female aviation students who completed the survey. The first set of questions addressed the participant's relationship with their parents or primary caregivers. The answer choices for these questions were "excellent," "good," "neutral," "poor," or "bad." As can be seen in Table 1, a high percentage of both aviation professionals and aviation students indicated that their relationship with both of their parents (or primary caregivers) was either "excellent" or "good".

Table 1

<table>
<thead>
<tr>
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<th>Professionals</th>
<th>Students</th>
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</thead>
<tbody>
<tr>
<td>Relationship with mother as child</td>
<td>83.4</td>
<td>81.9</td>
</tr>
<tr>
<td>Relationship mother as adolescent</td>
<td>60.0</td>
<td>77.3</td>
</tr>
<tr>
<td>Relationship with father as child</td>
<td>75.8</td>
<td>86.4</td>
</tr>
<tr>
<td>Relationship with father as adolescent</td>
<td>73.4</td>
<td>72.7</td>
</tr>
</tbody>
</table>

The participants were then asked to categorize both their mother and father’s personality as either very strong, strong, average, mild, or meek, and to then indicate whether or not they felt each parent’s personality had any effect on their choice of career. The percentages of participants that indicated their parents’ personalities as either very strong or strong can be seen in Table 2.

Table 2

<table>
<thead>
<tr>
<th></th>
<th>Professionals</th>
<th>Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mother’s personality type</td>
<td>73.3</td>
<td>72.7</td>
</tr>
<tr>
<td>Father’s personality type</td>
<td>44.8</td>
<td>68.2</td>
</tr>
</tbody>
</table>

When asked about the influence of their mother’s personality on their career choice, the aviation professionals most frequent response was “not at all” (40.0%) while for aviation students the most frequent response was either “somewhat” (27.3%) or “not at all” (27.3%). Regarding the influence of their father’s personality on their career choice, professionals’ most frequent response was “strongly” (33.3%), and students’ most frequent response was “strongly” (40.9%) as well. When asked about
parental support of their career choice, the majority of respondents indicated that their parents were either strongly supportive or supportive of their career choice, as can be seen in Table 3.

Table 3

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<tr>
<th>Question Stem</th>
<th>Professionals</th>
<th>Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mother’s support</td>
<td>80.0</td>
<td>86.3</td>
</tr>
<tr>
<td>Father’s support</td>
<td>76.6</td>
<td>77.3</td>
</tr>
</tbody>
</table>

A majority (63.3%) of the professionals indicated there had not been a person outside their immediate family who was influential in their growth and development, while 54.4% of the students indicated the same. However, for those that did have an outside influence, this individual was largely indicated as being either “very positive” or “positive” in encouraging the participant to choose an aviation career, with 100% of the professionals indicating this to be the case, and 90% of the students indicating the same. Both groups indicated there was at least one family member (most often an extended family member) who did not support their career choice, with 54.5% of the professionals experiencing this, and 80.0% of the students experiencing it. Since this was one of the few areas of difference between the two groups of participants, a chi square test was performed to see if the difference was significant, and it was found to not be.

Most of the participants did not choose an aviation career based on having a family member in the industry, with 73.3% of the professionals and 68.2% of the students not basing their decision on this factor. However, for those that did have a family member in the industry, those family members were a positive influence on their decision to enter the aviation career field. The professionals indicated that 87.5% of the family members in the industry were either “strongly positive” or “positive” in terms of influence, while 100% of the students indicated the same. For both groups, this individual was likely to be their father (71.4% of professionals and 83.3% of students). The most frequent response of age range at which interest in aviation first occurred was 11-15 for the professional participants, while it was the 16-20 age range for the student participants.

The last series of questions was analyzed only for the professional participants, as students who have not yet started their careers could not answer the questions in an informed manner. A strong majority of professionals felt that their education had prepared them for their career either “very well,” “well,” or “adequately” (93.3%), while 96.6% of the professionals felt either “very well,” “well,” or “adequately” accepted in their career field. However, 60% of participants found it was either “very difficult” or “difficult” to enter their career field, and 63.4% experienced either “quite a bit” or “some” difficulty becoming accepted in their field. When asked about the level of difficulty experienced in being promoted, 40.0% of respondents indicated promotion was either “very difficult” or “somewhat difficult.” The most frequent response to a query regarding the challenge of balancing their career and family life was “neutral” (43.3%), while the most frequent response to a question regarding the pressure felt to conform to the aviation field’s traditional roles was “somewhat.” The majority of respondents (56.7%) felt either “very strongly,” “strongly” or “somewhat” that the expectations for personnel in aviation careers should change. The mode for the range of years of experience for the professional respondents was 16-20 years.
The open responses provided by participants in the “comments” section provided insights into the experiences of some of the participants. Such comments included: “One employer no longer wanted to work with me when I became pregnant because he did not believe women with children should work outside the home;” “As a woman, I have to prove myself beforehand, but men get promoted on potential and then show they can handle it afterwards;” and, “Career can consume you. It is easy to become overloaded. Very hard to put priorities in order sometimes.” But, one participant acknowledged, “As hard as it is to be promoted as a woman, there is the flip side, that it is much more accepted for women to balance their career/family lives than it is for men. It is always frowned on when my husband has to take time off for the kids.”

**Discussion**

It was interesting that very few differences were found between student and professional responses. For both groups, the factor that most influenced their choice of aviation career was having parents that were supportive of this career choice. Most participants reported having positive relationships with both of their parents, and it was noticed that the majority of respondents indicated that their mother’s personality was stronger than their father’s. While the majority of participants had no significant influence outside their parents in choosing their career, there were still a number of participants that did have this outside influence (36.7% of professionals and 45.5% of students). When there was an outside influence, this individual was very influential in causing the participant to choose an aviation career. Interestingly, it was found that a far greater percentage of professionals (80.0%) than students (54.4%) had experienced a family member who was not supportive of their career choice. Since the students are obviously of a younger generation than the professionals, this does seem to demonstrate a shift in attitudes for the better. While most participants did not have a family member in the aviation industry, those that did reported that they received positive influence from this individual. These findings are all in support of the earlier qualitative study that was conducted utilizing MTSU undergraduate aviation students, and indicate that supportive parents and other influential individuals in young females’ lives are the single most important factor in influencing the choice of an aviation career.

The most serious limitation of this study was the low response rate. It had been hoped that at least 100 aviation professional participants would be obtained, along with 50 aviation student participants. However, the point of this study was to extend the understanding of the strongest influences on females to entering the aviation industry, beyond what was previously learned from a limited qualitative (interview-based) study of MTSU female students. This study did indeed support the findings of the previous study. As a next step, the responses of the female aviation professionals in this study will be compared to those of male aviation professionals, in an attempt to identify the differences that exist between these two groups.
References


