

Teaching Women to Fly Research Project Summary

Research Project Overview:

The Teaching Women to Fly Research Project was partially funded through a generous grant awarded by the Alfred L. and Constance C. Wolf Aviation Fund. Researcher and pilot, Dr. Penny Rafferty Hamilton, began an in-depth study to identify strategies to improve female success in General Aviation in October 2008. The study was completed in August 2010.

The original Wolf Aviation Fund grant application indicated an extensive literature review would be conducted. A large bibliography is published on the “More Reading” button at www.teachingwomentofly.com .

Also, surveys and/or interviews with 100 female pilots-in-training, unsuccessful women flight training students, and/or low-time general aviation female pilots, and 50 male or female flight instructors would be completed to identify barriers to women’s success rate. Positive ideas to increase the number of women pilots would be generated.

Because of overwhelming General Aviation media interest, aviation organizational support, and inspiring national interest from flight training students, pilots and instructors, the number of completed surveys and/or interviews was 296: 54 female current “pilots-in-training” and female flight student drop-outs, 157 female pilots of varying experience and ratings, 52 female and 33 male highly-qualified flight instructors. Pie charts reflecting responses are published at www.teachingwomentofly.com on the “Results” and “Instructors” buttons.

2011 Goal: 1% Increase in the number of female GA pilots

A measurable and reachable goal must be set. According to the FAA, there are 700,000 certificated pilots. If 6% or 42,000 are female pilots, to increase that number by 1%, only 420 more women need to earn their private pilot certificate in 2011. However, if the statistic of pilot success to start rate is only 30%, then, 1,400 new female pilot starts are needed to increase the number of female pilots in 2011 to 7%. Improving the success rate will result, if some of these 101 ideas are put into action immediately.

101 ideas to increase women’s success in general aviation

What Aviation Organizations Can Do:

1. Large aviation associations and aviation manufacturers can create low-interest loan programs for private pilot training.
2. General aviation interest groups need to encourage either the US Department of Education loan program administrators or Congress to expand low-interest student loan programs to include flight training. Student loan programs are currently available for women to train to be truck drivers. Also, if flight students are affiliated with a community college or university aviation program, student loans are available. However, at many FBO programs and with private

instruction, women report difficulty securing funds for aviation training. See the student loan web site <http://www.finaid.org/loans>

3. More financial aid and scholarships need to be made available to married women with families learning to fly at Part 61 flight schools and treat Part 61s as an approved Trade School.

4. Currently, the Post -9/11 GI bill educational benefits will not pay for flight training. In the past, these funds were made available to veterans pursuing approved aviation programs. Women can not use their veteran's education benefits or a transfer of spouse benefits for GA flight schools. See <http://www.gibill.va.gov> Congress can amend the current program to include approved flight training programs again.

5. The MyCAA (Military Spouse Career Advancement Account) grant needs to be reinstated and allow Part 61 Flight Schools to qualify.

6. More Military Base Recreation Departments need to start Aero Clubs. This will encourage military families/dependents to get involved with general aviation and increase the number of female pilots.

7. Under 2007 legislation, federal student loan borrowers, who work in public service jobs for at least ten years, qualify for loan forgiveness. With the expected shortage of airline pilots, legislation to include aviation training loans in student-loan forgiveness should be started now. See an overview of the complete loan forgiveness program at <http://www.finaid.org/loans/forgiveness.phtml>

8. Scholarships for older women, who are not affiliated with a University Flight program, are very limited. Training grants should be available to older females to earn their wings at the local flight school. Many "seasoned" women indicated a strong life-long desire to become a pilot. Family obligations often required this "bucket-list" desire be put on hold. Now is their time to learn to fly. Many current scholarship programs target a younger demographic.

9. Aviation associations or local pilots can create Aero Clubs to keep down the cost of flying and aircraft ownership. Members could even encourage and mentor less experienced pilots. More social flying could be planned by Club members. Focus on family activity and friendship building which are important to women.

10. Expand or target programs such as AOPA Project Pilot to have women pilots available to mentor female students. One female pilot said, "My flight training was one of the most wonderful things I have ever done. But, I can also tell you that it really did feel like the loneliest thing I have ever done. It would have helped if I had a community of female pilots close at hand, who reached out to me."

11. Pinch-hitter graduates should be kept informed of local general aviation training available, especially Sport Pilot options. General aviation training information should be mailed to the home addresses of hangar renters/owners. Aviation Insurance Companies should reward and encourage two-pilot families with significant insurance premium discounts.

12. Create a “Keep Flying” crisis line. Toll free “prayer line,” “quit smoking,” and other “help” lines are available and appear to fill a need. Female students could call the confidential line to share their fears and joy. Because often a woman flight student is surrounded by males, who do not talk about “feelings,” females enjoy talking out their frustrations. Research indicates women use 20,000+ words a day. Men use around 7,000, then, they are done. Male communication pattern is to offer solutions to perceived problems. Females just want someone to listen.

13. Create a non-profit Yahoo group with a good moderator to help fill the “sharing/encouraging need” for female pilots-in-training.

14. Market/target risk takers such as female members of parachute clubs, women motorcycle clubs (Leather and Lace), martial arts clubs, and gun clubs with invitations to take an introductory flight lesson. One female pilot suggested flight training be marketed as an “adventure,” especially to professional women, who have the means and freedom to develop their passions. Invite these women to 99s, WAI, or local aviation meetings and airport events.

15. Organizations as WAI, 99s, Whirly Girls, Women Soaring, etc. should link to each others web sites with free listings for female instructors, female “friendly” web sites, and publish local meeting and conference information. These groups can co-sponsor events and training.

16. Airline flight attendants, baggage handlers, customer service/gate agents, and mechanics should be “invited” to general aviation meetings and introductory flight training.

17. Airlines should offer subsidized flight training education benefits to employees. Aviation-related businesses should consider this employee benefit, too.

18. Network with other women’s organizations such as “Red Hat” Society. Invite them to hold a luncheon at the airport, especially in a hangar. Have women pilots participate in the meeting. Donate flight instruction or Let’s Go Flying orientation rides as door prizes.

19. Reach out to community groups such as animal rescue. Women have a high rate of volunteering for charity and community betterment projects. Stories of women pilots should be placed in that organization’s local, state and national newsletter. The local news media should be informed that a female pilot is using General Aviation to participate in animal rescue. Organizations such as Pilots N Paws need to be promoted in aviation newsletters/publications so that women pilots can respond. Angel Flight and many other important charitable organizations, which partner with GA pilots, are included in this outreach and promotional idea to introduce GA female pilots to non-flying audiences.

20. In marketing, use slogans as “You can fly, too” with a photo of a smiling woman pilot. A message of “Make your dreams take flight” can be attractive to many “bucket list” women, who either did not have the money or the time or both in their early adult years to pursue aviation. In their 50s & 60s, they want to feel that accomplishment of earning their “wings.” Feature both mature women and younger females in the marketing materials.

21. Stories of successful women pilots need to be brought to the attention of the local and national media and women's periodicals to focus positive stories about female aviators.

22. Sport Pilot training needs to be widely promoted. Sport Pilot Graduates should speak to non-pilot women's groups to share their experience. Earning a pilot's certificate is doable for women at any age, especially in the newer Sport Pilot planes. Many have never been informed of the Sport Pilot programs.

23. A free on-line "Teaching Women to Fly-Improving Communication" continuing education/training program for flight instructors needs to be developed and made easily available.

24. To increase women's competence and confidence levels with aviation mechanical systems, low or no-cost self-study training DVDs should be produced for women to help them make up the "workshop" gap. Most women do not know "how it works." Boys have probably taken clocks apart since they were five and might have even gotten them back together at some point.

25. Groups could be formed around special interests such as "Grandparents fly" to "connect" to other Grandparents and grandchildren to spread the joy of flying. Other affinity groups already formed such as www.ladieslovetaildraggers.com need to be promoted and sponsored.

26. Girls need to see living aviation female role models. The power of early childhood exposure to general aviation for girls is very important. Aviation groups and businesses and "tween" advertisers should sponsor "girls fly programs" or even, air re-runs of the old "Sky King and Penny" television shows on cable outlets targeted at the female teen market.

27. Electronics manufacturers and stores have found women control 88% of all electronics purchases. In targeting buyers, research indicates men want to know about the product's speed, size, and options. However, women relate to how it will make their lives better or easier. According to a 2006 *Washington Times* newspaper article, "In early 2005, electronics company Best Buy changed its in-store signs to focus on how a product is used, instead of its gadget details, to target women." Perhaps, this is a clue as to how more females can be attracted to general aviation. Aviation manufacturers, advertisers, and flight training schools should focus on the value of general aviation to improve the quality of life.

28. A listing for "female friendly" flight instructors should be made easily available to prospective female pilots-in-training before they begin flight instruction. Because finding a compatible flight training program or private instructor is critical to the woman's GA success, the listing needs to be made available at no cost to future students and for flight instructors to register.

What Flight Schools and Flight Instructors Can Do:

29. The flight-training industry and the FAA need to recognize the need for flexibility in the instruction syllabus. The flight-training sequence of instruction needs to allow for

individualization and personalization based on the female student's learning styles and experiences. One size does not fit all.

30. Create a more "female friendly" atmosphere at the flight center with photos of successful, smiling female pilots getting in airplanes and at the controls, instead of the cold, framed art of phallic symbol jets and rockets barreling through the sky with no people in the pictures. Women are interested in people. Research reveals female babies will immediately focus on people's faces. Male babies will dart their eyes and follow moving objects. Men tend toward interest in objects.

31. Training materials and flight school marketing materials need to show both genders as enjoying the experience of flight training. Both genders should be pictured as pilot-in-training, instructor, and in career roles such as air controller, airport manager, and aircraft sales.

32. Give positive feedback, especially for procedures well-executed. This allows the female student to build confidence. Praise the effort, if that is all the student performed well.

33. When speaking about the training experience, use personal pronouns as "we" and "us." Women tend to focus on building friendships, relationships and emotional connections.

34. Linguistic research reveals women tend to use apologetic language as "I am so sorry, but I don't understand." They tend to start sentences with questions. Some males misinterpret this "typical" female pattern of communication. Males comment that "She asks too many questions." Or, they may think the female student is questioning their ability to instruct.

35. Research indicates women are more sensitive to voice tones, body language, and facial expressions. They need good eye contact to feel they are actually being listened to by males. Instructors should not be shuffling papers when talking with women pilots-in-training. This will be interpreted by them as "disrespect" and not caring.

36. Ask the students for feedback on their flight school experiences and instructors. Even fast food restaurants give customers a chance to fill out surveys about their experiences. Flight schools need to be more interested in customer-student service. This is essential, if a female flight student drops out of training.

37. Give students a greater sense of control by allowing them to talk to the flight instructors, instead of just being assigned the next instructor in line. Instructor-student compatibility is critical to the female's success.

38. Flight schools should have a very short form which asks students about their preferred learning styles. Even surgery offices have forms which ask the patient if they prefer written or verbal post-surgery instructions. This can help with communications. This makes the flight student feel as though she is getting more personal instruction, a concept very important to many females.

39. In addition to learning styles, a cursory look at the student's tolerance for risk needs to be done. Just as financial organizations perform risk assessment to help individuals plan for retirement, an individual student flight training plan can be mapped out with the pilot-in-training. A female pilot, who has earned multiple ratings, shared this observation, "Female students cry when under intense pressure, whereas the male students get sullen or angry. However, it is the female students that are jeered at and laughed at when they get out of a plane with puffy eyes. There is this horrible negative stigma associated with crying ...suddenly flight training is not so much fun anymore." The macho-macho man environment at some Flight Schools drives many women away from aviation.

40. Educational research indicates when a manual task is paired with a mental task, learning is strengthened. Physically "acting out" how to bank the airplane, pretending to hold the yoke and engage the controls while being coached verbally, increases the competence and retention of training. This teaching technique is called "Embodiment," according to study results reported in *Cognition* appearing in *Psychology Today*.

41. Women respond to positive instruction. When explaining what needs to be done, use the positive words and visual of how it should be done. Research indicates if a negative is used to describe what should not be done, the image of the negative or incorrect behavior is planted in the female's mind.

42. If the student's instructor leaves flight instructing, give the student a "free" or lower cost orientation with a new instructor so she can determine if they are compatible. In addition to "good customer service" by the flight school, this provides a sense of control and personalization for the female student.

43. Develop a "buddy" network where a more advanced student or a pilot can mentor a newer student, if only by telephone or email. Friendships are key to women enjoying the General Aviation experience.

44. Establish monthly or quarterly student and instructor "success events" where milestones can be celebrated as a group in a less tense environment than the cockpit. Friends who share an interest in flying can be made. Women are social. One female pilot suggested, "The flight school might make it easier to communicate with other students who would like to study or socialize together."

45. Celebrate the journey and small milestones. Just as the whole baseball team runs to home plate to celebrate a home run, the pilot-in-training who completes her solo should have a clapping crowd waiting for her as she deplanes or walks into the flight school/FBO. But, smaller milestones should be celebrated with fun pins, baseball caps, etc. The flying journey and the "getting there" should be a good experience. One female pilot reported that she flew from a small, community airport. When she was on her third touch and go during her solo, the tower radioed her. She could hear the applause over her radio. Now, that is personal support and encouragement from the entire aviation team. Over ten years later, she still reflects about how much that meant to her.

46. Photos of Flight School women pilots-in-training at the controls, pre-flying the plane, etc. can be posted on the school bulletin board and class/school web site.

47. Develop “alumni groups/clubs” where networking can be accomplished. Also, future students can be recruited and referred through the alumni.

48. Instructors should not yell. Women are often more sensitive. Their skill sets differ from men. If the instructor yells, under stress the female brain will shut down and learning can not progress. Research on the effect of stress on Flight Instructor behavior revealed instructors in high stress situations, especially air training, tended to be irritable and more impatient with students. Instructors should take a few minutes to talk with the student about their feelings, too.

“Acknowledge if you were terse or appeared to be angry, you are sorry. You were just having a difficult day. Be sure she knows ‘it is not her fault,’” advised a long-time Flight Instructor. Perhaps, because many males participate in sports and those coaches sometimes yell, men feel this is the correct model to use with flight students. For women, it is not a good teaching or motivational tool to use.

A female, who holds several soaring world-records, shared her first private pilot flight training experience, “I ended my flight training when the instructor yelled at me, ‘You don’t know how to fly!’ I can’t imagine how devastating that experience would be if it was my only flight experience.” Several unsuccessful and several female pilots reported examples of flight instructors yelling at them.

49. Find out about the student’s past experiences to build communication bridges. If a football or military analogy is used, females are less likely to understand because they have probably not had that experience. But, they have had plenty of other experiences which can be used to master flying skills.

50. Instructor’s should not show off “Top Gun” skills on the first, second, or even third air training lesson. Many females report fear as a factor in their flight training. Some women term Flight Instructors, who bank too steeply or perform “death stalls,” as “Fright Instructors.”

51. Offer flight simulator early in the instruction process, possibly before the actual air work, depending upon the student’s risk tolerance and experience. Many girls have never seen Microsoft Simulator and a “joy stick.”

52. Determine what the student knows and her general aviation experience before introducing her to air work. One woman was immediately taken for an “orientation ride.” The instructor yelled at her when she did not follow his direction to “just follow the VASI in.” She had never heard of a VASI before. At least he could have said line up those three lights on the VASI. She would have looked for lights. Women are usually “pleasers” and “appeasers” by nature. They want to follow directions and instructions. But, they need to clearly understand what is to be done.

53. Several women indicated when they started air training and, even ground school, they had difficulty with the new jargon. One did not know what FBO meant. Providing a commonly used list of aviation-flying abbreviations at the beginning of the training would be helpful. A fun

classroom exercise could be to see how many students could identify (or guess) what AOPA, EAA, WAI, FAA, FSDO, ADO, and many other commonly used aviation acronyms mean.

54. One female pilot shared that in ground school she felt like “Alice in Wonderland” because “I did not go to ‘boy-school.’ I never heard of ‘right-y tight-y, left-y loose-y.’ It was a completely-and, I mean completely, new language.” Engines, maps, compass, all need to be physically present in the classroom to help crystallize the abstract and foreign concepts to women. Several suggested a lending library of DVDs to reinforce the classroom materials. The women student can study the additional educational materials to “catch up” with many of the male students, who already know “left-y and loose-y!”

55. Most of the women who decide to begin flight training are self-starters. If map reading and geography skills need to be strengthened, suggest the no-cost on-line sites listed at www.nationalgeographic.com or public library check out of computer skill games related to increased spatial skill sets.

56. Because ATC/radio communications can be difficult, a microphone in class can be used to demonstrate quick, short delivery because women communicate differently. One male flight instructor shared, “Men usually get directly to the point with information to follow. Women tell the whole story first. The tower personnel are usually not amused.”

57. Because studies indicate women have often developed less spatial ability, don’t ask her to turn North during the flight. Pair the directions with “Let’s head north or toward that railroad bridge. Can you see that bridge?”

58. Also, be sure your student can actually see over the panel. If she is “vertically challenged,” be aware of booster seats and pedal extenders. Offer them.

59. Have someone call the student to “see how it is going.” Even dental offices call the patient after a root canal. Females need to hear the Flight School is interested in them and their progress.

60. For all those male instructors who say the “politically correct,” there is no difference with the way women and men learn, get real. Gender research studies, even on infants, indicate large differences. Women need visual and tactile reinforcement when learning math and science and spatial skills. In the simulators have “real” yokes and panel instruments so that women can really get “the feel.” Don’t just talk about reading the compass. Have a compass. Many women don’t know cardinal directions or how to read a compass or map.

61. Because women tend to be “left-brain” dominant, they tend to have superior verbal, listening and writing skills. To build early confidence, flight instruction exercises should incorporate these areas.

62. Dr. Frank Luntz in *Words That Work* reports from his research, women generally respond better to stories, anecdotes and metaphors, while men are more fact-oriented and statistical. Be up-beat about other female pilots who were successful. Mention the nationally recognized female

aviators, if you need to use outstanding examples. In order to succeed, women need to feel they have the ability to fly. They need to be told this often to build their confidence.

63. Take a photo of the student smiling at the controls, even if the photo needs to be taken while still on the ground. Give it to her to post everywhere she will see it. As you see yourself, so you shall be. If you think you are a pilot, you will succeed. Encourage positive self-talk and focus on what they are doing correctly.

64. If your student population allows, have girls-only study groups for various phases of flight training. Introduce students to each other. They might form their own study group.

65. After the in-flight training lesson, have a private area away from the cockpit and flight line, even if it is just a table in the coffee room, where the lesson can be reviewed. Emphasize what she performed correctly.

66. Use “Echo communication” where some of the student’s words are “echoed” back in the response. With women, this confirms the listener is really listening to what they just said. This is a very important communication technique when speaking with females.

67. Having a mnemonic to practice and memorize for various phases of flight training is very helpful to women. It would be a mental check list for take off, landing, etc. Women have strong verbal skills.

68. Having the instructor tell, show, and use the same terms establishes a pattern for the female to model. For example, the instructor could review the steps for takeoff on the ground before the engine start. Using the same words, terms, and sequence, the instructor could model a correct take-off. Then, when it is her turn to take off, evaluate using the same words, terms, and sequence. It is easier to model correct behavior.

69. If the student has a question which is “out of the FAA curriculum sequence,” it should be acknowledged with some basic information. This demonstrates the instructor is actually listening to the student. If the Instructor’s response is “we will get to that later,” it can be interpreted as dismissive and condescending. Remember, especially with female students, the adage “Students don’t care how much you know until they know how much you care” is very important. If the FAA syllabus indicates “stalling” is the next step and the female student is already fearful, move on and go back later. Individualize the instruction.

70. Words have impact. Using the term “pilot-in-training” for the student in the flight training program indicates that success and certification are the planned outcome. Just calling them “student” means she could be a student anywhere studying anything. She is a future pilot. A recent Charter School study showed, if students were identified by their grade, i.e. first graders, they had a much lower level of achievement and graduation rate. However, if they were referred to as being in the “class of 2015,” the implied expectation was graduation. Those students performed accordingly.

71. Sport Pilot needs to be presented as an option to older women, especially if they might face medical issues. Older women appear to be a large, overlooked segment with many having a life-long dream of being a pilot.

72. Flight schools need to know what financing programs are available. Even LASIK surgeons and Dental implant offices provide information on financing to their patients. According to several responding in this study, many flight schools just expect the student to figure it all out on their own. Flight schools should have an updated list of scholarships and grants available for women. Although somewhat dated, a helpful aviation financial aid web site is <http://iflyasa.com/2009/11/10/101-general-aviation-flight-training-scholarships>

How Ergonomics can be improved:

73. The newer planes have adjustable seats but the older models still have seats that do not easily accommodate shorter legs and smaller bodies. Sometimes women find it is difficult to see over the panel. Sitting on multiple pillows can be uncomfortable and unstable. Also, rudder pedal extenders might be needed. Until the female student decides if they want to invest in expensive “boosters” and “pedal extenders,” flight schools might have “loaners” to see if they help the student.

74. Male instructors need to be made aware that if the female flight student can not see over the panel, she will have great difficulty flying? Women need to know that seat cushions as Oregon Aero pillows and many others such as Powder Puff products can assist females make the cockpit more comfortable. One female pilot said she took the seat cushion off the couch in the FBO’s lounge each time she flew. Another female pilot suggested boating float cushions which are not very expensive.

75. If car manufactures can produce comfortable seats for women, airplane designers need to incorporate comfortable and safe seating for female general aviation pilots and passengers. Also, rudder pedals need to be moveable, just as gas pedals are in newer cars.

76. Having a small step ladder near the flight line would make it much easier for women to check fuel levels, instead of having to “balance” on the struts. Another step stool/ladder near the fuel facility would be helpful and add to safety.

Building for the future: What pilots and aviation organizations can do.

77. More pilots need to help girl scouts with their aviation badges. Also, more female pilots need to volunteer to speak to classrooms about general aviation and careers. More female pilots need to volunteer with EAA Young Eagles and museum aviation summer camps for students and programs such as Kiddie Hawk aimed at 4 to 9 year old (see www.kiddiehawk.org).

78. Working with their local schools, local pilot volunteers should provide GA classroom educational materials which also teach math, reading and reasoning skills. Pilots should volunteer to mentor and assist in the classroom during these exercises.

79. Working with local school boards and administrators, Aviation Magnet Schools and Aerospace Academies can be developed. Models as Shawnee High School Jefferson County, Kansas, Houston, Texas Ross Shaw Sterling High School and others should be cited to school leaders. Georgia adopted a four-year high school aviation curriculum to focus on job skills and career classes.

80. More female general aviation pilot role models need to be seen in magazine articles and advertising for products. Both genders should be featured in aviation product advertising.

81. The stories of the important contributions made by the brave and talented WASPs of World War II needs to be included in history discussions and classroom education at all grade levels.

82. Research in gender issues indicates each sex is wired at birth. Rather than trying to have young girls “play with airplanes” when they would rather play with a doll, why not offer them a general aviation pilot doll? Currently available are female flight attendant dolls and male airline pilot dolls. Several years ago, Barbie Career doll did offer a female airline pilot doll but Mattel indicates that doll is out-of-production and no longer available. A female general aviation pilot doll could have pilot pals, an airplane hangar and, even a new GA airplane.

83. Mattel has an annual “career Barbie” on-line voting competition. An organized campaign to have a general aviation pilot Barbie should be started. If “Barbie Dentist,” “Barbie Computer Engineer,” “Barbie Animal Trainer” and Barbie Gymnast” are options for this program, just the awareness created by a “GA Barbie” could be helpful to young girls considering their future options. See www.barbie.com/vote

84. General aviation women pilots need a social media presence. If breast cancer survivors can build a battalion of “pink sisters” to support them and provide information as they journey to survivorship, social media as Facebook and Twitter can be used as a female pilot-in-training reaches her flying milestones. This can be helpful to her and encouraging to others, who might not have considered pursuing flying. According to research reported by Karen Patterson on www.curetoday.com, 35% of U.S. adults use on-line support sites. Social media allows for interactive communication.

85. “Pilots without partners” matching service needs to be developed so that pilot “buddies” can be connected to promote more flying and the social aspects and fun of general aviation.

86. Lower female participation is not just in aviation. According to a recent report from the American Association of University Women, careers for females in math and science fields still lag behind that of males. For example, in 1966 almost no women would be found in Engineering, Physics or Computer Science. Forty years later, females in these careers are at about 20%. In 1966, women in Chemistry and Math careers hovered at about 7%. By 2006, females were about 30% in those two fields. The airplane, except for some ergonomics with the seats and rudder pedals in older model trainers, does not discriminate. Perhaps, gender bias and, even parental influence on career aspirations are in play. If “tween” girls knew Angelina Jolie and Hilary Swank are private pilots, a lot more excitement from young women about GA flying might result. Successful role models are very important.

87. More women pilots, aviation organizations and businesses need to support the highly successful Girls With Wings project www.girlswithwings.com. Encouraging young girls to pursue aviation careers and introducing female aviation professionals early in the decision-making process opens options to consider for young girls.

88. A free “Aviation Speakers” site needs to be made available for pilots to register to speak on various topics to civic clubs, scouts troops and students. That site needs to be made available to civic club program planners and educators because pilots are more likely to respond to local invitations to speak to promote their community airport and general aviation.

89. Pilots of both genders need to personally meet with the local high school counselors, who are so important in career decisions of students. Aviation training, scholarship and career information needs to be provided to them for their files for student counseling. Photos of both genders need to be featured in this career information.

90. General aviation needs to “go to” the consumer by “thinking-out-of-the-box.” Hosting booths at shopping malls, high school and college athletic events are examples of community outreach. Potential female students can be reached at these “off airport” locations.

91. Host an aviation art show at a local gallery or public library. An aviation art competition might be included. The theme of famous women aviators would provide important focus on outstanding female pilots.

92. Pilots should take every opportunity to promote the value of general aviation. If they have a business or medical office reception area put out *AOPA Pilot*, *Sport Pilot*, *Flying Adventures* and *Flying* for reading materials. Wear aviation pins and badges in social settings to encourage talk about general aviation. This might get a non-pilot interested in pursuing flying.

93. More females need to volunteer with the Civil Air Patrol. For young females, it provides an excellent introduction to general aviation and flying experience. For women pilots, they can be role models for all the cadets. The other CAP volunteers share aviation experience with women. Females can earn CAP leadership positions.

94. According to a report in *Psychology Today*, sexual harassment is often experienced by more assertive females in a male-dominated industry. Several respondents mentioned overt and outrageous examples of sexual harassment. Serious thought needs to be given as to how individuals and organizations can address the need for a professional training and working environment.

95. Recent studies indicate girls can perform math problems as well as boys, if the math problems are on a topic of interest to them. For example, ask “What the price of a pair of new boots is, if they are on sale at 30% off the original price of \$55? But, if you use your frequent shopper card, which gives you an additional 5% reduction off the sales price, and the sales tax is 3.5%,, what is the price?” more girls can solve the problem than boys do.

How aviation is presented is very important to get the girls interested. Saying Angelina Jolie just bought a new plane to fly. Then, presenting options of where she can fly with the fuel the plane has on board in order to be on a movie set; now you have gotten the girls' attention.

96. Pre-paid tuition and flight training funds placed with private flight instruction schools needs to be better protected, especially in a difficult economy. Flying is expensive. When offered the opportunity to pre-purchase instruction and airplane rental, safeguards need to be established because many students have been financially ruined when their tuition/flight training funds were lost, when the school closed unexpectedly.

97. If local media celebrities are pilots, that accomplishment needs to be promoted in their station bios. Aviation organizations need to reach out to them as high-profile role models, especially women pilots.

98. The research indicates a large percentage of younger female pilots participated in organized sports programs as basketball, volleyball, softball, soccer, track and cycling. In the 38 years since the 1972 Title IX legislation, sports programs have offered risk sports opportunity and a social experience for young women. General aviation marketing and women pilot organizations should target organized high school and collegiate women sports programs with the GA message.

99. Women pilots and GA information should be made available to female students in IT, computer programming, engineering, and construction programs because they may have stronger spatial skill sets and interest in mechanical and detailed procedures.

100. Because other women may be reluctant to "venture on to the airport alone," female pilots need to personally invite other females to General Aviation meetings, events at the airport and offer to go with them on a "Let's Go Flying" orientation flight.

101. Aviation organizations and individual pilots need to donate age-appropriate library materials about successful and famous women pilots, especially WASPs to their school libraries. Back issues of *AOPA Pilot*, *EAA Sport Pilot*, *Flying* and *Flying Adventures* magazines can be donated to the pre-school for the children to cut out the airplanes and pretend to fly them. Current magazine copies should be donated to the local community library for the reading rooms. Flight schools should also have a lending library and reading room. A suggestion from a newer woman pilot, "If weather stops your flight lesson, read flying-related books and magazines to keep up the right mindset."

Special Thanks:

These concrete ideas, generated by the many who responded to the call to share flight training experiences and suggestions, are greatly appreciated. Also, special thanks for the generous support of the Alfred L. and Constance C. Wolf Aviation Fund, their staff and volunteers. Learn about this important Foundation at www.wolf-aviation.org .