Strengthening the Pipeline from Service to STEM

A series focusing on the future of Women Veterans in STEM

Health & Well-being • Transition Services • STEM Workforce • Women Veterans • STEM Education

This paper was developed as part of a National Science Foundation-funded project seeking to improve participation by women veterans in the STEM workforce. It is the first of five papers aimed at providing a snapshot of what is currently known about women veterans' participation in the STEM workforce, factors that affect their participation, and promising practices to increase participation and success in these fields. A convening in early 2021 will bring together key stakeholders to discuss the implications of these findings and how to best strengthen and scale the impact of existing initiatives to support women veterans' success.

STEM Careers for Women Veterans

What job training and experience uniquely qualify women veterans for STEM careers?

Whether or not they serve in STEM-related Military Occupational Specialties, women in the military develop essential leadership skills.

As restrictions on women's participation in certain military divisions or sectors have been lifted, more opportunities for STEM-specialized training have become available to them. STEM-related Military Occupational Specialties (MOS) include such positions as computer network architects, civil and environmental engineers, data scientists and many more. Given this training, women veterans are ready to move directly into many civilian careers. The Skills Translator tool on the Military.com website can help women vets see how their MOS training might translate to a particular civilian job.

In the future, STEM jobs will require more than just technical skills.[1] A study from the University of Syracuse showed that veterans also develop skills in domains such as work ethic and discipline, leadership, adaptability, and teamwork.[2]

According to _The New Foundational Skills of the Digital Economy,_[3] a report from Burning Glass Technologies, other skills will be required in three domains:

Human Skills, or "soft skills," such as critical thinking, creativity, communication, analytical ability, and collaboration

Digital Building Block Skills, which are especially useful to data-driven decision makers and include such things as analyzing data, managing data, and computer programming

Business Enabler Skills, such as project management and digital design, that allow the veteran to put the other skills to work in practical business situations

These are skills that women veterans develop during their time in service, along with essential work skills such as leadership, persistence, and teamwork, which are valuable to civilian employers in all fields. In addition, the fact that most women veterans are women of color or ethnic minorities can bring an amazing richness of diversity to STEM fields, contributing valuable perspectives that are often overlooked as being assets.

In what ways do traditional recruiting pipelines exclude women veterans from non-traditional academic and career paths?

Existing systemic biases create barriers for women veterans seeking non-traditional careers.

While women veterans bring many sought-after skills to the job market, they may lack industry-specific experience or may have trouble explaining how their experience applies to a particular civilian job. The hiring process gets even more difficult if employers don't understand the military, thus putting the veteran at a competitive disadvantage.[4] The human resources departments of many companies use recruiting software to prescreen applicants' resumes. But biases that exist in human screeners also inherently exist in the software algorithms and exclude many qualified candidates[5]—for instance, those who may not have a traditional four-year college degree or who have gaps in their work history. Even candidates for entry-level jobs are often required to have specific degrees rather than relevant experience. These sorts of requirements act to block applications from women veterans who actually may have developed extensive knowledge and experience in STEM-related fields though MOS assignments.

A gap in employment history is another barrier to securing a civilian job,[6] and one that affects many women veterans. Employers may view military service itself as a gap due to a lack of awareness of what active military service entails and the job skills and training that are gained. Women may have to leave the workforce for a time in order to meet their family obligations as spouses and caregivers, thereby restricting their ability to get past the job recruitment gatekeepers. Women veterans who are also military spouses may be particularly vulnerable to experiencing these gaps as a result of the inflexibility of military life.[7]

Even though more than 60% of employers say they are motivated to hire veterans based on their qualifications and prior experience and 98% of employers who have hired a veteran say they would do so again, many firms continue to struggle with recruiting veterans.[8] Most of these companies aren't aware of the effective hiring practices of the firms that have successfully recruited veterans; sharing successful strategies for recruiting and onboarding would be one approach to promoting veteran-focused employment initiatives.

Recently, some STEM employers have begun to create career tracks that recognize the value of applicable experience, such as apprenticeships, certifications, and military assignments. Amazon and Cisco, to name two, have established fast-track training programs that are open to non-traditional candidates such as women veterans without four-year degrees. These kinds of initiatives are one way to promote STEM pathways for women veterans; however these fast-track programs may limit future career options in STEM, as the skills required continue to evolve. Employers will have to continue to incorporate best practices that support veteran employment.

In what ways does peer mentoring boost women veterans' participation and persistence in STEM careers?

Traditional mentoring takes place through academic and employer-based settings; peer mentoring provides social support for women veterans seeking STEM careers.

Peer mentoring takes place outside of traditional mentoring settings, often through organizations designed specifically for women veterans transitioning into the workforce. Vets help vets by sharing past experience and information about scholarships and financial aid, and by suggesting paths to take toward employment. This type of mentoring provides help with navigating the employment field, gives unique insight, and offers the opportunity for networking. This style of mentoring also encourages women veterans to advocate for themselves.

Women working in STEM fields are far more likely to leave their jobs than women working in other fields. The majority of moves out of STEM occur in the first five years; after about 12 years, 50% of women who originally worked in STEM have left, compared to only 20% of other professional women.[9] But studies show that ongoing mentoring support helps vets not only to enter the STEM field but to stay in the STEM field. Mentoring has been shown to promote interest and persistence in STEM for women generally,[10, 11, 12] and for women veterans in particular.[13, 14, 15, 16]

Women veterans often have lower levels of social support than do male veterans,[17] and may benefit especially from peer mentoring, particularly as they transition to a civilian career. Organizations that are available to women veterans outside of academic or employer settings are instrumental in supporting their transition to either school or work. Some prominent programs are (1) the ACP's Women's Veteran Mentoring Program, a one-year mentoring program where a woman veteran is paired with a woman entrepreneur or business leader, (2) Veterati, an online platform that connects veterans with mentors, and (3) Academy Women's eMentor program.

What practices and strategies have been shown to boost women veterans' career development and retention in STEM careers?

Increased awareness of systemic biases, combined with increased appreciation of the experience and skills of women veterans, is improving their participation in STEM careers.

As mentioned above, some civilian employers are coming to appreciate the advantages of hiring women veterans for STEM-related jobs. They are changing their human resources policies to make them more inclusive, beginning with less restrictive algorithms for their applicant-screening software. They are establishing mentoring programs and affinity groups that contribute to the professional development and retention of women veterans in STEM-related positions. Employers also can encourage senior employees to not only mentor but to "sponsor" women veterans by actively advocating for the promotion and career advancement of individuals with high potential.

Employers who are developing programs for veteran retention can refer to the *Guide to Leading Policies, Practices, and Resources: Supporting the Employment of Veterans and Military Families*,[8] which provides a thorough checklist of practices to support the assimilation of veterans into the workforce. Suggestions include establishing various types of mentorships, training existing employee assistance professionals in veteran-specific issues, and creating positions such as military relations managers. But such efforts depend on the progressive outlook and good will of individual employers; we must work for systemic change to ensure that all women veterans who are qualified for STEM careers have access to them.

In Summary

These findings will provoke national dialogue on the importance of policies and programs to support women veterans in seeking greater economic opportunities through STEM work. We can leverage the unique expertise of these individuals only by providing the additional support they need to be able to successfully join the STEM workforce. While such support exists in isolated pockets and instances, it is critical that our nation create opportunities for all female veterans. We seek to bring key stakeholders together for this timely and critical discussion, and invite those who are interested to join us.

For more information about the project, check out our website **womenvetsstem.edc.org**

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