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VetsEngr: Easing Student Veterans' Transition to Cybersecurity Careers

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In 2010 and 2011 The VetsEngr Project, a pilot program funded by the National Science Foundation¹, studied Washington National Guard enrollment in the Information Security and Risk Management (ISRM) certificate offered at the University of Washington through continuing education. Inspired by the 2009 NSF report, *Veteran's Education for Engineering and Science*², and motivated by a STEM planning grant³, VetsEngr sought to identify barriers service members face in transitioning to academia in pursuit of careers in cybersecurity.

¹ National Science Foundation. (2010-2012). [EEC 1037814] VetsEngr Project, PI Barbara Endicott-Popovsky, Co-PI Amelia Phillips Highline Community College.

² National Science Foundation. (2009). "Veterans' Education for Engineering and Science." This study identified the opportunity to leverage technical military training and aptitudes to support service members' transition to civilian careers via postsecondary education.

³ Rajala, S. (2009). NSF #0951441: "A Planning Grant Proposal for Transitioning America's Veterans to Science, Technology, Engineering and Mathematics Academic Programs," Mississippi State University.

VetsEngr was the basis for developing an assessment tool for identifying those individuals most likely to succeed in a cybersecurity education program and, ultimately, a career. With the U.S. facing a serious shortage of cybersecurity professionals, many military personnel, eligible for generous educational benefits, have already received military training and experience that could be transferred to cybersecurity careers as civilians. This is especially true in the Pacific Northwest where the Guard draws from local technology companies such as Amazon, Boeing, Microsoft and T-Mobile.

Interested service members were invited to participate in the Risk Management and Information Assurance certificate program. The program had both an in class and an online component.

METHOD

Five service members participated in a focus group in Lakewood, WA on March 29, 2011 to share their experiences in attempting to use their educational benefits, and suggestions for overcoming any barriers identified. The Nominal Group Technique (NGT) was used. The two probe questions asked were:

- 1) What are all the barriers, internal and external, that prevent military personnel from using their education benefits (to prepare for STEM careers)?
- 2) What are all the ideas you can think of that would help overcome those barriers?

When using the NGT, individuals are given about five minutes to record all the answers they can. Then one-by-one, participants are asked to read one of their responses. This continues until the last participant has exhausted his/her list. “Hitchhiking” is encourage, meaning that if new ideas occur to the participants as they hear responses from their peers, they are encouraged to add them to their list. The benefit of this approach is that the period of individual responding, followed by “hitchhiking” tends to result in a broader array of responses than a traditional focus group approach.

One of the ideas mentioned during this process was the creation of a campus “Honor House,” modeled after Canadian programs that were developed to support their veterans. A third phase of the focus group entailed an “Idea-writing” exercise responding to the instruction: Design Your Ideal and Sustainable Honor House. Each participant responded to this instruction with his or her preliminary design in about 5 minutes. When completed, the participants traded with one another, read the other person’s design and modified it to incorporate their concepts. This process continued until each participant had the opportunity to respond to each design.

FINDINGS

Nominal Group Technique question 1:

What are all the barriers, internal and external, that prevent military personnel from using their education benefits (to prepare for STEM careers)?

The challenges identified by this group focused on a lack of awareness related to how to work with the educational benefits, including a lack of familiarity and a bureaucratic inflexibility on the part of the institutions, and a lack of awareness on the part of the service member about the different programs, opportunities, and requirements.

The three top barriers identified by this group are:

- the ongoing struggle inherent in working with two complex bureaucracies (the UW and the military) that are not well integrated
- the lack of awareness on the part of the service members as to educational opportunities and the benefits for which they are eligible
- the service member’s need to work because of the costs that are not covered by the GI bill. This barrier, combined with the understanding that some benefits are available only for full time students, means that service members who do not have other support may not be eligible for some of the GI bill’s benefits.

In addition to these top three barriers, participants identified other categories of barriers, including:

- **Personal barriers** that might interfere with a service member's use of educational benefits, including inadequate educational preparation (or fear of this), family responsibilities, disabilities (including PTSD which might interfere with learning), or lack of geographic access;
- **Lack of career planning** including not knowing how to translate a military skill into a civilian job, a lack of long-term career planning, and no clear understanding of career pathways and the education or training required to travel those pathways.
- **Cultural differences** between the military and the postsecondary setting, including differences in values, the chaos that can be found in a university setting relative to a more orderly military setting, and no place for service members to assemble on campus to create a community.

Nominal Group Technique Question 2:

What are all the ideas you can think of that would help overcome those barriers?

The suggestions proposed by the participants focused on 1) simplifying and otherwise increasing the accessibility of the benefits system; 2) changes to the system to increase articulation between military training and postsecondary credits, and to improve the payment process; 3) creating support procedures within the military so that career planning and use of educational benefits becomes an obligation of the military rather than just an option for the service member, and within the academic institution.

Simplified, accessible system: One individual suggested a system that would enable him to enter his social security number and receive a report about his education benefits. He noted that retirement benefits are reported using such a system. Another suggested an electronic checklist (with contact information for each step) that constitutes a step-by-step process for navigating the pathway from the military, through the academic institution, into a civilian career.

System integration: Participants suggested establishing identified articulated pathways so that service members with certain training can apply for academic credit based on that training. For some, this would mean shortening the academic program

and for others, it would help the service member know how they might transition their skills from the military to civilian life. Participants suggested workshops where academic staff and military education personnel “get on the same page” and get to know each other. They also suggested improvements in the payment process, both linking what the military will pay with what the academic institution will charge, and meeting the institution’s payment schedule.

Support: Participants suggested a shift in the commitment of the military to the future careers of their service members. They suggested making it an obligation of the military to counsel and support service members in this way from their first day and increasingly through the discharge process. One specifically requested that a counselor be available to take a call when the veteran begins to encounter roadblocks in the process of accessing the educational benefits. In addition to enhanced support on the military side, participants suggested enhanced support on the academic side as well. Suggestions included bringing classes to the post, creating a mentorship system with service members or veterans who have already made it through, making the campus veterans’ centers more helpful, and creating a place where service members can form a community and support one another.

Appendix I contains flip chart notes organized into response categories for both NGT questions.

Idea writing: Design your ideal and sustainable Honor House.

Participants agreed that the Honor House should be located on or near campus and feel warm, comfortable, welcoming, and accepting, and visually reminiscent of the military (“with an educational twist”). Their design would include:

- a kitchen and dining area
- common areas for gathering together and hosting guest speakers, workshops and celebrations
- places for small groups to meet and study together
- independent study facilities

- access to the library, computers, and the Internet, as well as a textbook exchange.

Participants recommended offering basic services through a combination of paid staff and volunteers, preferably veterans themselves. Staff should provide psychological services; expert advice on paperwork for military students in general, and financial aid in particular; career counseling and navigation; and academic support and tutoring. Staff should be able to respond to service-specific issues, and be prepared to address the needs of veterans with disabilities. Volunteers and alumni would be invited to serve as mentors, tutors, or in other support roles.

RECOMMENDATIONS

- Prioritize career planning and education for service members: Make career thinking, counseling, and planning part of the service's ongoing message to service members from basic training to discharge. Track educational attainment by service members at the unit level as an outcome so that more attainment is rewarded.
- Make educational benefits more accessible: until a system similar to that used for retirement benefits is available, service members will need to rely on experts within the military or within academia to help them navigate the complex benefits, complex educational systems, and transfer of credits from military training to civilian training to convert their career planning to actual education. This may require an educational "navigator" housed on base or at the educational institution or elsewhere.
- Identify several likely military-to-civilian career transitions and work toward establishing pathways to those civilian careers with specific institutions. This would include an identified course of study, and articulation agreements spelling out how credits will transfer from the military to the academic setting.
- Establish a structure for service members and veterans to meet, study together, and support one another through their education and into their career. This community should be welcoming and accessible for all service members, at any stage in their career path.

- Encourage communication and collaboration between the military education center staff and academic staff.

CONCLUSIONS

Findings from this pilot confirm the major findings from the 2009 NSF study, Veterans' Education for Engineering and Science which suggests that special programs need to be established to assist veterans transitioning to academic programs – particularly those in STEM fields of study. While we know that many military occupations fall into the science and technology areas, this does not always translate into pursuit of STEM fields of study. For example, in 2009, less than one percent of young veterans work in the information and communication industry 24 months after they exit the military; however, approximately thirty-five percent of enlisted members serve in electronics, communications, or other technical fields.⁴ This would suggest that some facilitation within the academic environment is necessary to assist these veterans in being successful in technical fields of study. This facilitation should also include finding ways to fully support the veterans and their families during summers between academic years. The GI Bill offers 36 months of academic support – which translates to four years of nine-month support. Veterans need a more comprehensive support program that will provide four years of twelve-month support.

The findings from this study have become the basis for a transition support program at the University of Washington Tacoma that includes not only academic programs in cybersecurity oriented toward veterans, but also the support systems necessary to ensure successful completion and re-entry into the work place.

The insights from this study have led to the creation of CREATES, the Cybersecurity Rapid Education and Transition to Employment System, that integrates many of the ideas that emerged from the pilot. This program is currently

⁴ Ibid. Rajala, S. (2009).

being implemented at the university and resources from the community organized to feed the system. See figure 1.

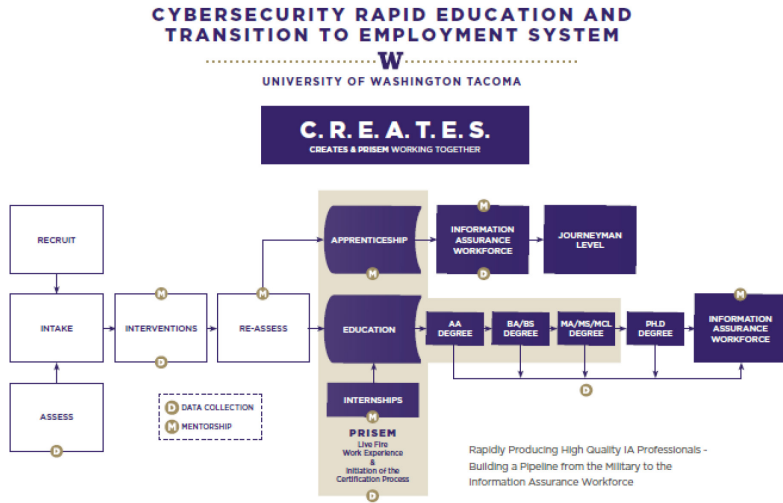


Figure 1. CREATES Pipeline (Source: Morgan Zantua, MS)

The system begins with intake that includes a recruiting and assessment process. Interventions are identified and the transitioning student’s readiness is re-assessed. Education is complemented by both apprenticeships and internships that complement and amplify student learning in preparation for careers following graduation. Students are able to select a path from 2-yr programs through graduate degrees prior to emerging in the workforce. Choice of a path is aided by a database, under development, of degree offerings through NSA/DHS Centers of Academic Excellence across the country, knowing that only 40% of the 8,000 per year of veterans transitioning through the Pacific Northwest will settle here.

Initial NSF funding resulting from the 2009 study of transitioning veterans into STEM disciplines launched this effort that is now addressing the needs of veterans returning through Joint Base Lewis McChord and Camp Murray. Agreements are being executed with military branches to assist with their transition efforts and to

assure that returning military have opportunities to pursue careers in cybersecurity that are in demand.⁵

APPENDIX I

DETAILED FOCUS GROUP FINDINGS

NGT 1: What are all the barriers, internal and external, that prevent military personnel from using their education benefits (to prepare for STEM careers)?

Top three barriers

- 1) ****Lack of awareness** about education system opportunities and benefits of GI bill
 - a. Lots of different programs with different requirements – it’s confusing
 - b. “Convergence is happening with the programs”
 - c. Complex benefit structure; mixed benefit sources
- 2) ****Two difficult bureaucracies** that don’t speak to each other (University and Military). It’s labor intensive just to get through both systems. This is an ongoing struggle.
 - a. Knowledge – paperwork – the process
 - b. “Getting grades to the education department; doing the paperwork”
 - c. Motivation energy to get through systems – it’s exhausting
 - d. Universities are not adapted to veterans
 - e. Articulation for life experiences – postsecondary institutions can’t translate experience from military to college credit. (Some know how; some don’t.)

⁵ Army Reserve Launches Partnership to Create Pathway for Cyber Warriors,” U.S. Army Reserve web site, Feb. 12, 2015, <http://www.usar.army.mil/resources/Pages/Army-Reserve-launches-partnership-to-create-pathway-for-cyber-warriors.aspx>

- 3) ****Conflict with job** – need to work because costs aren't covered. But some benefits are available only for fulltime students.
- a. Out of pocket cost – FTA doesn't cover 100%
 - b. Have to pay for books

Personal, internal barriers

- a. Educational preparation (maybe just a GED)
- b. Fear, intimidation, self-doubt about academic performance in the past.
- c. Family responsibilities
- d. Physical and mental barriers – PTSD might block a soldier's wanting to enter life or might be a roadblock to learning
- e. Maturity and persistence of military personnel
- f. Geographic access, transportation barriers
- g. College isn't their goal

Lack of Career planning

- a. Lack of a sense of long term career planning – emergency mentality
- b. Unawareness of civilian job context – how to translate my skill into a civilian job
- c. Lack of clear career pathway through education

Cultural differences

- a. Cultural difference between military environment and values/ and college environment and values – liberal vs. conservative
- b. Chaotic university setting
- c. Unknown university setting
- d. No place to assemble on campus

NGT 2: What are all the ideas you can think of that would help overcome those barriers?

Simplified, accessible system

- a. Want a program that takes my SSN and knows my education benefits (like retirement benefits)
- b. And send that info to educational institution
- c. Simplification. Electronic checklist – benefits and a step by step process that takes you through the process. A roadmap. Who you call. Step 1, step 2, step 3.

System integration

- a. Identified pathways aligned with what military people do and have already earned credits toward (part of orientation system).
- b. Establish articulation process
- c. Workshops with military educational personnel and academic personnel – get on same page, have same standards – and get to know each other – create better partnerships
- d. VA office on campus has to be prepared – they must be more aggressive for the soldiers
- e. Jump start funding (don't have to wait for funding)
- f. Figure out what military will pay and institution will charge that. Cater to the military

Support

- a. Change the system so that it is an obligation of the military, not just an option for the service member. Orientation process while in the military – get the service members thinking about possibilities for their future, their career, and their education. Measure it by outcome, not output. Individualized career planning.
- b. Informed employment counselors (embed education opportunities into soldier on exit – a beefed up ACAP)/ informed deployment personnel.

- i. Counselor must personally offer assistance (call me if you need help)
- c. Authorize more benefits for full time students
- d. Place/Community
 - i. Move classrooms to the army post
 - ii. Web Ex classes
 - iii. Place to assemble, like a fraternity house
 - iv. Have all this at veteran's center on campus/ focal points of information
 - v. Mentorship for service members (military who are ahead or academic people)