POSITION PAPER

ON

THE AIR FORCE SHOULD NOT RECRUIT ONLY OFFICERS WITH SCIENCE, TECHNOLOGY, ENGINEERING, AND MATH (STEM) DEGREES

1. This position paper is on the Air Force should not recruit only officers with science, technology, engineering, and math (STEM) degrees.

2. Officership is the element that separates military officers from all other professions.1 Officership is not something that most officers can learn outside the military. Officers must see themselves first as military leaders and secondly as specialists such as pilots, engineers, financial comptrollers, logisticians, air battle managers.2 The Air Force must recruit officers from various education background and skills to fit different career fields. There are 26 of the officer career fields that are identified by Air Force Specialty Codes (AFSCs). Currently only five career fields require a STEM degree -Weather (15W), Civil Engineer (32E), Communications and Information (33S), Scientist (61S), and Developmental Engineer (62E).3 Some career fields require extensive professional experience such as physicians, lawyers and chaplains. The officers with STEM degrees cannot fit into all the career fields. Therefore, the Air Force should not recruit only officers with STEM degrees.

3. The Air Force processes compelling air, space and cyberspace capabilities. Underestimating the needs for STEM degrees officers can deteriorate the Air Force’s ability to maintain the technical skills it heavily relies upon to support air, space, and cyberspace operations. Even though some officer career fields, such as intelligence, cyberspace, personnel, acquisition management, logistics, space and missiles, have no stated requirements for STEM education, the accompanying skills that STEM graduates possess such as logical, systematic, critical and analytical thinking, and problem solving are essential to perform the duties. While over 5,100 officers with STEM degrees currently serve in these functional areas, some 3,200 more are required to meet current needs. The growing complexity of both traditional and future missions will likely increase and alter their STEM degree needs.

4. “*Great leaders are made, they are not born*” Vince Lombardi Quotes. There are many soft skills such as integrity; charisma, inspirational, visionary, effective team building, communicating are essential for becoming great leaders. These attributes are a combination of personality, character, skill, communicative ability, and emotional intelligence. Therefore a leader is born, developed, skilled in communications, and cultivated through life experiences. Recruiting only officers with STEM degrees will turn away many potential great future leaders. None of the last four chief of staff has a degree in STEM. logical, systematic, critical and analytical thinking, and problem solving skills can be tested in Air Force Officer Qualifying Test. The Air Force can learn from Coast Guard to start a direct commission program for engineers to recruit individuals with extensive technical skills and expertise.

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No leaders are born be leaders. Only about 40 percent of the officers in the Acquisition Management career field have technical degrees, and fewer than 10 percent of civilians in the Business and Industry occupational series, which includes acquisition managers, have technical degrees.

While in the past the Air Force’s technologically intensive mission has been highly attractive to individuals educated in science, technology, engineering, and mathematics (STEM) disciplines, force reductions, ongoing military operations, and budget pressures are creating new challenges for attracting and managing personnel with the needed technical skills.

http://sites.nationalacademies.org/cs/groups/depssite/documents/webpage/deps\_058687.pdf

They report that it is

not necessarily the STEM-specific knowledge that is necessary to carry out the position’s duties,

but the accompanying skills that STEM graduates are believed to be more likely to possess such

as logical, systematic, critical, and analytical thinking, and problem solving.

Only five Air Force officer career fields currently require a STEM degree—Weather (two-digit AFSC 15W), Civil Engineer (32E), Communications and Information (33S), Scientist (61S), and Developmental Engineer (62E). Even though all other officer career fields, such as pilot, navigator, air battle manager, maintenance, space and missiles, and program management, have no stated requirements for STEM education, a significant percentage of officers in these career fields do hold STEM degrees. For example, 45 percent of pilots have science or engineering degrees, and a STEM degree is one of the preferred educational backgrounds for candidates to the Acquisition Corps, in accordance with the Defense Acquisition Workforce Improvement Act (DAWIA) and the Air Force’s Acquisition Professional Development Program (APDP).

Only three civilian occupational series in the Air Force require a STEM degree: Engineering, Physical Sciences, and Mathematics. However, as with STEM-degreed officers, STEM-degreed civilians work in many occupations that do not formally require a STEM degree.

Finding 2-2a. Assessments of future missions and the future operating environment suggest that Air Force missions will become more technologically intensive and will require a proportionally larger STEM workforce in many career fields across the Air Force. (https://www.nap.edu/read/12718/chapter/2#3)

2.

Officers:

Develop evidence-based methods to refine academic degree requirements for functional areas, highlighting the need to consider the future.

Develop a more precise and visible framework for documenting the results of this method so the Air Force can sum up accession requirements by career field and know whom to recruit, access, and classify.

Adopt a more effective method of coding degree types.

Use data from this analysis and from results mentioned above to identify "critical" and "high utility" academic degrees for use across the accession process.

Consider substituting some STEM degree requirements with requirements for critical thinking skills identified by a minimum Air Force Officer Qualifying Test, perhaps with sufficient STEM coursework.

(http://www.rand.org/pubs/research\_reports/RR659.html)

END NOTES

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